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INTEGRATED LOW EMISSION CLEANUP SYSTEM FOR DIRECT COAL-FUELED TURBINES (ELECTROSTATIC AGGLOMERATION)

DOE CONTRACT NO. DE-AC21-88 MC-24258

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Final Technical Report

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ABSTRACT

This topical report by Research-Cottrell, Research & Development Division addresses the progress made during Phase II under the Department of Energy contract DE-AC21-88MC24258, the testing and evaluation of Electrostatic Agglomerator.

The objective of this contract was to investigate the removal of SO_x and particulate matter from direct coal fired combustion gas streams at high temperature and high pressure conditions. This investigation was to be accomplished through a bench scale testing and evaluation program for SO_x removal and the innovative particulate collection concept of particulate growth through electrostatic agglomeration followed by high efficiency mechanical collection. The process goal was to achieve control better than that required by 1979 New Source Performance Standards.

Research-Cottrell's Research & Development Division (R-C R&D) was the project manager of this team effort by R-C R&D, AVCO, and Research-Cottrell's Western Air Pollution Control Research Laboratory. AVCO Research Laboratory was a sub-contractor to R-C R&D for the design and construction of the combustor test facility. AVCO Research Laboratory projected significant cost overruns and Phase II was restructured to use R-C R&D's Western Air Pollution Control Laboratory (KVB). R-C, KVB was assigned the task of combustor construction and was responsible for providing a test facility. R-C KVB operated the combustor and gas cleanup system located at its Santa Ana, CA test facility. Research-Cottrell, Research and Development Division was responsible for the overall testing and evaluation effort of the hot gas cleanup unit including the design and construction of the electrostatic agglomerator and high efficiency cyclone.

During Phase I, the designs of the combustor and gas cleanup apparatus were successfully completed. Hot gas cleanup was designed to be accomplished at temperature levels between 1800° and 2500°F at pressures up to 15 atmospheres. The combustor gas flow rate could be varied between 0.2 - 0.5 pounds per second. The electrostatic agglomerator residence time could be varied between 0.25 to 3 seconds.

The Phase I Final Report (completed in March 1989) addressed system integration and economic analysis of a DCFT system. A sensitivity study of parameters such as DCFT turbine temperature and pressure, ESA residence time, ESA power consumption and the sorbent cost and sorbent rates was performed. The introduction of hot gas cleanup system on a 207 MWe DCFT plant using limestone increased the cost of electricity form 80 mils/kWhr to 85 mils/kWhr for realistic assumptions of ESA parameters.

Phase II (completed February 1992) of this R&D contract was for fabrication of the combustor and ESA components, erection and integration of the system at the KVB Santa Ana facility and shakedown testing of the electrostatic agglomerator. The contract ended prior to SO_2 removal studies. Therefore SO_x reduction will not be a topic of discussion in this report.

In Phase II, all components were fabricated, and erected successfully. Test data from shakedown testing was obtained. Unpredictable difficulties in pilot plant erection and shakedown consumed more budget resources than was estimated and as a consequence DOE, METC, decided it was best to complete the contract at the end of Phase II. Parameters studied in shakedown testing revealed that high-temperature high pressure electrostatics offers an alternative to barrier filtration in hot gas cleanup but more research is needed in successful system integration between the combustor and electrostatic agglomerator.

It was determined in Phase II testing that coal derived fly ash melting point is an important variable as well as particulate stickiness. Ash of low melting point and sticky particles can plague successful implementation of barrier filters as well as high temperature, high pressure electrostatic agglomeration. This research contract revealed that particle physicochemical properties should be addressed prior to hot gas cleanup design.

SECTION I: PROJECT OVERVIEW AND SUMMARY

I.1 Objective

The objective of this contract was to investigate the removal of SO_x and particulate matter form direct coal-fired combustion gas streams at high temperature and high pressure conditions. This investigation utilized a bench-scale testing and evaluation program for SO_x removal, and an innovative particulate control concept that utilizes electrostatic agglomeration followed by a high efficiency mechanical collector.

The process goal was to achieve particulate collection efficiency better than that required by the 1979 new source performance standards. An additional goal was to demonstrate 70 - 90% SO_x removal efficiency by sorbent injection near the discharge zone of the combustor.

I.2 Background Statement

A commercial, high efficiency gas turbine burning low-cost coal is expected to provide a significant cost reduction in the generation of power compared to conventional petroleum based methods.

Earlier investigations in the 50's and 60's encountered problems related to expander erosion and particulate deposition which prevented continued development of the technology. Recent developments that have overcome most of the earlier problems include the following:

- The commercialization of high-temperature gas turbines.
- Coal benefication which provides a much cleaner fuel with lower ash and sulfur.
- The development of hot gas cleanup devices from the pressurized fluid bed combustor (PFBC) and coal gasification technologies.
- Basic data characterizing the hot gas stream is available from the PFBC and coal gasification programs.
- Combustor innovations such as the slagging combustor developed for MHD which are now being adapted for retrofitting oil-fired boilers to burn coal.

DOE has recently awarded contracts to develop a coal burning gas turbine to four companies:

- General Motors is to develop a fuel system, combustor particulate separator, recuperator, and engine controls for use on turbine locomotives.

- General Electric is to evaluate two combustor configurations for turbine locomotives.

- Solar Turbine is developing a slagging combustor and other components for cogeneration applications.

- Westinghouse will examine 100 MW class industrial gas turbines for application in the electric utility sector. Westinghouse will first test with a small scale 0.5 MW direct coal-fired gas turbine system, followed by a larger prototype coal-fired combustor module tailored for the 100 MW Westinghouse turbine.

All of these projects are attempting to produce a clean gas stream through combinations of precleaned coal and combustion system features. It is well recognized, however, that hot gas cleanup devices are important as a fall back position, and may prove to be the key to bringing the direct coal fired turbine (DCFT) to fruition. Figure I.1 shows a schematic of various systems using the DCFT concept.

A major body of operating experience in burning residual fuel exists in gas turbines. Ash levels as high as .04% with another .05% of additive to inhibit vanadium attack, have been tolerated by utility-sized gas turbines. This is a .09% total ash transported to the expander, or 0.048 $lb/10^6$ Btu. This is one reference point in judging the allowable particulate carryover to the expander.

For the slagging combustor, the most difficult requirement to meet is considered to be the NSPS for particulates. Even if all the other requirements were met by the slagging combustor, an external device may be needed for particulate cleanup. The required ash removal for burning of pulverized coal with an ash content of 10% is about 99.7%. Burning of a precleaned coal with the ash content reduced to half of that, or 5% requires 99.1% ash removal. A further lowering of the ash content of a precleaned coal to 1-2% still requires a relatively high removal of 99.7 to 97.9%. Furthermore, sorbent addition will increase the particulate removal requirements.

For an Illinois No. 6 bituminous coal, Figure I.2 gives an example of the filter requirement as a function of the assumed ash removal rate of the slagging combustor, without the added sorbent. Added sorbent will demand even higher levels of particulate cleanup. As can be seen from the table, questions remain on the ability of slag separators or cyclones to deliver 99.7% or higher efficiencies prior to the turbine.

Efficient ash removal in the combustor is necessary to avoid damage and fouling of the gas turbine expander and to comply with New Source Performance Standards (NSPS). Although claims have been made for PFBC applications on the ability of turbines to withstand 100 to 200 ppm of dust burden if particulate is mostly below 5 microns, these apply to the temperature levels of 1500°F at pressure ratios around 10:1. For DCFT applications where temperatures could exceed 2200°F, at pressure ratios of 15:1 and

above, control of particulate at the 10-20 ppm levels may be more prudent given the propensity for deposition, corrosion and erosion. A high efficiency particulate control device ahead of the turbine can provide a margin of safety for turbine blades, while simultaneously handling the NSPS regulations. Table I.1 shows the particulate control requirements suggested by Westinghouse for the various particle sizes.

Although EPA has not yet promulgated any rules for direct coal fired gas turbines, it is expected that the New Source Performance Standards will apply. Control of particulate may well be the most important barrier to the commercialization of DCFT's. The Department of Energy has therefore embarked on a "fast track" program to develop advanced hot gas cleanup technology for this specific application. This contract, managed by Research-Cottrell, is one of those selected by DOE to develop a cleanup system for DCFT's that will meet or exceed the 1979 NSPS.

Research-Cottrell's Research & Development (R&D) Division managed the design, fabrication, testing and evaluation efforts of the electrostatic agglomeration concept on a test combustor located at Research-Cottrell's Western Air Pollution Control Laboratory in Santa Ana, CA.

I.3 Results and Accomplishments

This report reviews the results of the Phase II efforts. Specifically, the following has been achieved:

1. The electrostatic agglomerator and cyclone were fabricated and installed. The agglomerator can accommodate residence times between 0.25 seconds and upwards of 3 seconds. The agglomerator was tested for collection efficiency at a nominal 1800°F as an electrostatic precipitator. Particulate collection efficiency was on the order of 97% using alumina dust (2.9 μm MMD, GSD = 2.9).

2. The combustor for coal water slurry combustion was fabricated and provided natural gas combustion capabilities. Complete shakedown of the combustor using coal water slurry was not within the available budget.

3. Complete component integration between the combustor, agglomerator, and cyclone was accomplished. A particulate feeding system was integrated within the combustor to provide particulate matter to the agglomerator. A pressure control system, gas cooling system, and data acquisition system were also installed to complete the operation of the bench-scale test system.

4. Shakedown testing of the agglomerator at 1800°F was performed but budget restraints permitted operation as a tube-type ESP only. Table I.2 summarizes the collection efficiency data of the agglomerator in an ESP

mode. Table I.3 summarizes the physical test conditions employed during shakedown. The concept of agglomeration by electrostatic means was not tested.

I.4 Summary, Conclusions, and Recommendations

- A technical barrier evident from Phase II results is the fabrication of ceramic electrodes. Corona producing discharge electrodes require a sharp radius of curvature (for example, nail tip) to generate effective corona. Also, the assembly of a continuous ceramic electrode greater than 5 ft in length is limited to the commercial oven size. Commercial fabrication of ceramic components do not use ovens greater than 10 feet in length because of fabrication problems. Novel engineering designs were employed in this work to fabricate electrodes in two sections resulted in a structural weakness at the connection joint.

- A technical barrier shared by barrier filtration technology and electrostatic agglomeration is that not all flyashes are solid at temperatures of 1800-2500°F. The agglomeration concept is perhaps more restrictive because it requires particles to be sticky (semi-molten) but not liquid. A non-sticky particle that has a low electrical resistivity can result in poor capture by electrostatic mechanisms.

- It is recommended that the US DOE pursue studies on a smaller scale to address the range of coal-derived ashes that do not melt at 2500°F as well as provide resources to study the range of temperatures and coal ashes that result in sticky (non-molten) ash particles.

- Electrostatic agglomeration studies can be pursued at a smaller scale to eliminate the added complexity of integrating a complex coal combustor with an electrostatic agglomerator.

This topical report contains detailed discussions of the major task elements of Phase II.

Section II discusses the scientific basis of the mechanisms involved in the agglomeration concept for particulate growth through electrostatic applications. Key concerns in the process such as thermal ionization and corona stability, the use of pulse energization in overcoming the thermal ionization effects, the fragility of particulates as they travel through cyclones, and the cleanability considerations at high temperature have been addressed.

Section III discusses both the overall process design concept as well as the combustor design and agglomerator design. Also, the evaluation of combustor design to handle low gas flows using coal water slurry is discussed. The parameters of

temperature, pressure and flow rate ranges available for testing are presented. Also, Section III discusses the equipment considerations of a high temperature, high pressure electrostatic agglomerator including pulsed energization systems.

Section IV discusses the design of the testing plan for electrostatic agglomeration and presents the unanticipated problems as well as the corrective actions employed.

Section V contains the results of combustor shakedown testing and electrostatic agglomerators testing. Due to problems encountered in the implementation of the testing plan the electrostatic agglomerator was made into a tube type electrostatic precipitator.

Section VI contains the discussion and conclusions of test data.

SECTION II: SCIENTIFIC BASIS - MECHANISM FOR ELECTROSTATIC AGGLOMERATION

This section discusses the various mechanisms involved in any agglomeration process and specifically how the electrostatic force fields can affect inter particulate contact and subsequent growth.

II.1 Agglomeration Overview

Agglomeration is a process by which particles adhere upon contact and become larger particles. The tendency of aerosols to form agglomerates is present in all aerosol systems and it is dependent on two factors. It is first dependent on those conditions that cause collisions between the aerosol particles; and second, once the collisions are made, the factors that influence the adhesion of the particles to each other and the formation of stable agglomerates. The term adhesion is used in the following discussions to imply bonding among particles, as well as to the collector surfaces.

Factors affecting Inter-Particle Contact

In order for inter-particle contact to be achieved, particles must move relative to each other due to the imposed forces. The efficiency by which inter-particle contact is achieved is the key to successful agglomeration. A brief discussion of various external forces in aerosol collection mechanisms is described below.

Brownian Motion

Very small (sub-micron) particles are subjected to inter-particle contact by Brownian diffusion fields resulting from particle concentration gradients. The theory of particle coagulation by Brownian motion has been pioneered by Smoluchowski, Zebel and Friedlander. The collision probability has been shown to increase with particulate concentration. It was also pointed out in the studies by Smoluchowski that polydisperse aerosols tended to agglomerate faster than monodisperse aerosols. Also, large increases in coagulation rates were noted in particles that carried some electrostatic charge.

Electrical Separation Forces

The application of high, external electrical fields on charged particles is the underlying operating principle for commercially available electrostatic precipitators. Particles charged by the corona charging mechanism migrate towards the collector electrodes where they agglomerate into dust layers. These layers are dislodged by rappers into the hoppers for subsequent removal. The higher the particle charge and applied electrical field, the higher is the particle migration velocity towards the collector electrodes. The inter-particle contact is primarily achieved at the collector (grounded) electrodes where adhesive forces are important.

Both theory and experiments have clearly demonstrated that in electrostatic precipitators particle concentration near the collector electrodes can be as high as 20 to 50 times the inlet gas concentration after only a few feet of ESP collection zone. In a precipitator analysis using the turbulent diffusion model, Feldman, Kumar and Cooperman, have shown concentration profiles in ESP's as a function of particle migration velocity and particle reentrainment factors. This previous work points out that particles could be quickly concentrated at very high levels at the collector walls by the application of high electrical fields on charged particles. The key mechanism with the electrical separation force is that the controlled migration and subsequent concentration of particles at the collector electrodes will result in agglomeration due to the forces of adhesion described later.

Inertial Forces

In devices such as cyclones, particles are separated from the gas stream due to the centrifugal force on them. The separation force on a particle is given by

$$F_m = kmV^2,$$

where k is a constant dependent on cyclone geometry, and m is the mass and V is particle velocity. As can be seen, the decrease in spherical particle size form 10 micron to 1 micron can cause a 1000 fold decrease in separation force for a given gas velocity. It is precisely for this reason that mechanical collectors rapidly loose their separation efficiency for fine particles.

It is therefore obvious that cyclones will not be efficient in promoting inter-particle contact for smaller particles and therefore agglomeration of fines is necessarily limited when using the centrifugal or inertial separation force.

Sonic Forces

The use of sonic force fields to agglomerate particles in the bulk gas stream has been known for several decades. By applying sonic waves of sufficient amplitude and frequency, inter-particle collisions are enhanced thus leading to particulate agglomeration.

A comparison of various force fields as a function of particle size has been made by Whitby and Liu and is shown in Figure II.1. It can be seen that application of electrical and sonic forces to particles results in particle attraction for a wide range of particle sizes. The electrical force is comparable to gravitational force for particle size in the 1000 micron range. The gravitational force on particles decreases rapidly with particle size and the ratio of electrical to mechanical forces is as high as 10^6 for particles in the sub-micron range.

Factors Affecting Adhesion

The creation of agglomerates requires the presence of bonding forces between the particles. Rupf has analyzed these forces which are described below:

- Adhesion by solid bridges
- Capillary adhesion forces
- Attraction forces between solid particles

Solid Bridges

If temperature in the solid aggregates is raised, at approximately one-half to two-thirds of the melting point of the solid, the thermal mobility of molecules becomes so great that diffusion will commence from particle to particle at their contact points. As a result of this diffusion mechanism solid bridges form at the coordination points. This mechanism is called sintering and is common in the steel industry. At still higher temperatures the material melts at favored points such as at roughness peaks, edges, etc. Due to surface tension, melt is drawn to the contact points between the particles, forming a liquid bridge. If the temperature is maintained the particulate aggregate is held together by capillary forces at the liquid bridges as described below:

Capillary Adhesion Forces

A liquid in free motion, having a freely moving surface contributes to adhesion between particles in various modes. These modes are described in Figure II.2. In the so-called bridge model (A) there is little liquid so that it retreats to the contact points between particles where it forms discrete bridges. In model C, all cavities in the particle agglomerate are filled with liquid while in model D the solids are completely enveloped by a liquid. The model B is an intermediate range containing liquid bridges as well as areas filled with liquid.

It is anticipated that only Model A will prevail for application and only the mechanism for liquid bridges between particles is described. In liquid bridges, the pull of surface tension at the contact line of solid-liquid-gas acts in the direction of the liquid surface, and wetting causes a capillary under pressure in the interior of the liquid bridge. Both contribute to adhesion. Analysis of the adhesion forces due to capillary and surface tension can be simplified by assuming that liquid completely wets the solid particles and that the particles touch each other.

Attraction Forces Between Particles

In addition to adhesive forces due to solid and liquid bridges, particulate aggregates will agglomerate further due to inter-particle forces even in the absence of material bridges between them. These forces are:

- Van der Waal's forces
- Electrical force between particles by charge attraction
- Electrical adhesive forces by current flow
- Adhesive forces due to dipole moments of particles in an electric field

Van der Waal's Forces

The Van der Waal's forces are molecular in nature and act between any two molecules due to the dipole moments induced in one molecule by the instantaneous dipole moment of the other. These forces diminish according to the d^{-7} law for distances between molecules in the twenty nanometer range. Though extremely sensitive to the interparticle distances due to molecular nature, these are known to prevail in microscopic bodies and depend critically on the true contact area between them. Van der Waal's forces are given by Zebel as:

$$F - Aa/12\ Z_0^2$$

where A is the Hamaker constant, Z_0 is the separation constant and a is the contact area. For the same particles, Van der Waal's forces could be enhanced if external forces such as electric fields create some surface flattening and increase the true contact area. In the electrostatic precipitator application, Van der Waal's forces would provide substantial adhesive strength, and may also explain why small particles tend to hold together more tenaciously compared to particles in the 20 micron range. Particles below one micron frequently show tendencies of spontaneous agglomeration affected by Van der Waal's forces. Larger particles with dimensions much larger than one micron can still provide significant Van der Waal's forces due to surface roughness peaks.

In the case of Van der Waal's bonding, thin adsorption layers at a thickness less than 30 A can effect significant molecular attraction even for large particle sizes. Adsorption layer effects at DCFT operating conditions are most likely to be present from coal ash and should not be ignored. The electrical migration force caused by an electrostatic mechanisms will have the effect of reducing particle separation distances allowing for increased particle contact, thus increasing the probability for Van der Waal's attractive forces.

Electrical Adhesion Between Particles and Collectors

Adhesion of particles at the collector electrodes is an essential element in the operation of ESP's. Particles must adhere to each other and the collector walls so that the agglomerated dust layer can be sheared off the collection surface into the dust collecting hoppers. Electrostatic precipitation is inefficient if adhesive layers are not formed, because the loose concentrated dust would otherwise be reentrained into the gas stream. Adhesion of particles at the collector surfaces of barrier filters is also essential in promoting a stable cake at the boundary for efficient particle sieving. Inability to form stable dust cakes may be one of the important reasons why a barrier filter works well on

one type of particulate and not on another.

Several mechanisms have been proposed on the adhesive behavior of dust in ESP's. Tassicker performed a literature survey on this subject and presented both theoretical and experimental analyses.

Figure II.3 is a schematic of the dust layer on the collecting surface of an ESP subjected to current flow. The electrical adhesive pressure on the dust layer depends on the applied field strength, the resistivity of dust, and the applied current density.

Electrical Adhesion by Coulomb Charges

The theory of aggregate formation by electrostatic forces in the gas stream carrying aerosols has been developed by Smoluchowski and Zebel. The strength of aggregates generated by electrostatic charging has been estimated assuming positive and negative charged particles arranged in a regular sequence. It was shown that for particles with opposite charge the net force is attractive and conducive to agglomeration while the like charges repel and resist agglomeration.

Particles that are pulled off the dust layer by reentraining forces usually carry charges opposite that of particles arriving at the collector electrode. Particle agglomeration in the bulk gas stream will occur due to the presence of such oppositely charged particles.

In the following section a theory for electrostatic agglomeration is developed utilizing the concepts described above.

II.2 The Concept of Electrostatic Agglomeration

The study of mechanisms affecting the inter-particle collision and adhesion clearly point the following necessary conditions to form agglomerates:

1. Conditions in any agglomerator must favor inter-particle contact.
2. Sufficient adhesive forces must exist to form larger agglomerates.

In the concept of electrostatic agglomeration both the particle collision and particle adhesive capabilities are utilized to the fullest extent possible.

The Electrostatic Agglomerator

In theory, the electrostatic agglomerator (ESA) will perform the following functions essential for successful agglomeration and aerosol removal:

1. Promote complete inter-particle contact by particle migration to a contacting surface.

2. Provide precipitating/agglomerating surface for adhesion by electrical, capillary and molecular forces.

3. Utilize a smaller volume, as compared to an ESP, and permit the use of high velocity gas flow to resuspend agglomerates for collection in a downstream collector.

Concentrator Section - Corona Generation

A schematic of the proposed electrostatic agglomerator is shown in Figure II.4. The ESA consists of a particle concentrator and a particle agglomerator section as depicted in Figure II.5. The particle concentrator section is designed to impart maximum particle charge by high electric fields and corona current. The purpose of this concentrator (corona producing) section is to provide the maximum migration velocity possible so that all particles have a high probability of reaching the contacting surfaces. The design philosophy generally used for electrostatic precipitators can be applied here. However, gas velocities significantly higher than normal precipitator velocities can be used in the ESA, because particle reentrainment is not a concern as it is in a precipitator. This allows the ESA to be much smaller as compared to an ESP.

Since the main function of this section is particle concentration and not total particle collection, high velocities that result in reentrainment are affordable and may be beneficial to the overall process. A sizing limitation of the concentrator section is the electrical migration velocity for particles in the sub-micron range. Sub-micron particles have the lowest migration velocities. Sufficient residence time compatible with the migration velocity of small particles will ensure maximum inter-particle contact at the contact walls. Residence time is a function of discharge electrode length in a tube-type precipitator. Since migration velocity depends on applied field strength and current density the design goal for this concentrator section is to optimize the applied corona power.

An estimate has been made on the applied field strength and charging currents at 2000°F and 15.5 atmosphere operation. Data from an EPA sponsored corona characterization study in the 1970's, conducted by Research-Cottrell, were compared with the estimates of the current and voltage using townsend's current-voltage relationship. Both data and theory indicated a limiting field strength of 2.02×10^6 volts/meter. At a pressure of 15 atmosphere and 2000°F, maximum collecting field strength of 2×10^6 v/m was estimated. At this field strength, a minimum in collection efficiency occurs for particles with 0.07 microns. Figure II.6 shows the collection efficiency of 0.06 micron particles at various residence times at these conditions. It can be seen that up to 99.89% of all 0.07 micron particles will reach the contactor walls at a residence time of 2 seconds in the agglomerator. For all other particle sizes, the fraction will be even higher. The most important parameter for sizing the agglomerator is the residence time, whether it is achieved through a variation in gas velocity or agglomerator length. The ultimate choice may well depend on the considerations of reliability and economics.

While the stability of corona using direct-current rectified voltages has been proven up to 2000°F by Research-Cottrell at pressures in the 15 to 20 atmosphere range, pulsed energization will be utilized to enhance the stability at temperatures in the 2500°F range.

It is possible to energize the agglomerator with a nanosecond pulse waveform whereby (1) stable corona should be achieved at 2500°F in either positive or negative polarity, (2) pulse voltages which are two to three times the D.C. levels should be possible, and (3) control of the operating power is done by changing the amplitude, frequency and width of the pulse voltages.

Agglomerator Section

The intent of the agglomerator section is to provide very high electric field strengths for charged particles and increased contacting surfaces for agglomeration. The agglomerator section shown in Figure II.5 will accomplish the following:

1. Eliminate the particle fractions in the 0.1 to 5 micron size levels (exiting from the concentrator) by agglomerating them further in this section.

2. Promote further exposure of agglomerated particles with very high field strength to enhance bulk agglomeration and promote contact electrification. Also, to promote adhesion by capillary forces at the contacting surfaces.

The agglomerator section consists of coaxial pipes with no corona forming properties. The power consumption in this section is practically zero, limited only to thermally induced currents. The mechanism for charging in this section is by induction. Particles of negative polarity will reach the positive electrode, reverse charge in less than a millisecond, be charged positively, and accelerate towards the negative electrode. By this mechanism, particle migration velocity as calculated in the earlier section is applicable, but with particles reversing charge more often than the concentrator section. It is expected that fine particles will be preferentially retained in the collector surfaces (both positive and negative) for adhesion by contact charging, capillary, and Van der Waal's forces until they become large enough to be reentrained as agglomerates by the drag forces on the particulate.

II.3 Parameters Affecting ESA Performance

The basis for ESA performance is effective inter-particle contact so that finer particles can be enlarged for eventual capture in the downstream collectors. Based on theoretical considerations discussed earlier, factors affecting the performance are:

1. Charging and concentrating electric fields in the concentrator section.

2. Agglomerating electric fields in the agglomerator section.

3. Gas velocity though the ESA.

4. Nature of particulate matter

Charging and Concentrating Fields in the Concentrator Section

The concentrator (corona) section is designed by applying the charging and separation mechanisms common to an ESP. Parameters for ESA design for a given particle concentration and size are:

- ESA collecting electrode geometry
- ESA discharge electrode geometry
- Applied electric field
- Applied current density
- Gas velocity

Negative polarity will be applied to the concentrator section, because data has shown ESP performance and migration velocities to be higher with negative than positive polarities. The resuspension of particles will depend on gas velocity and corona power. Since gas velocity is an important variable for determining system capital cost, it must be maximized in conjunction with ESP power and geometry to provide a cost effective, concentrator section. Discharge and collector electrodes are not variables due to sizing considerations for the proposed mass flows form the combustor. However, gas temperatures present a unique concern.

A process that has the potential to affect the electric field in the corona producing (concentrating) section of the ESA is thermal ionization.

Thermal Ionization

The problem associated with thermal ionization is the potential for excessive current flow caused by the presence of an excessive number of thermally generated ions in the combustion gases. In the extreme case even a small voltage applied to a heavily ionized gas would cause runaway currents. Cooperman's[1] calculations however, indicate that excessive current should not be encountered up to 2500°F; the electrostatic agglomerator program does not plan to operate above 2500°. Therefore, a process limitation because of thermal ionization is not expected.

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[1]Cooperman, P. Spontaneous Ionization of Gases at High Temperatures, AIEE Winter Meeting, 1963.

If, however, the unexpected does occur, there are ways to deal with it depending on the extent of the problem. In the extreme case, where an independent electric field cannot be applied without provoking runaway currents, conditions actually exist which favor self operation of the concept: In the charging section ample thermal ions would be available to charge the particles, and in the agglomerating section, with appropriate electrode spacings, the thermal ion space charge could be adequate to drive the charged particles to the electrodes for contact agglomeration. Thus, even in the extreme case the ESA concept may be valid, although operation would be different from normal.

In the more likely case of little or moderate thermal ionization we have proposed the use of pulse energization to control the current flow. Pulse energization means the application of short-duration fast-rising, high-voltage pulses to a DC base voltage. This provides more degrees of freedom in controlling current production at a given base voltage than in normal DC operation. For example, the DC base voltage can be set below corona starting voltage and current generated completely under pulser control by adjusting the pulse parameters of pulse repetition rate, pulse voltage, pulse rise time, and pulse duration.

In theory, pulse energization can be applied as a control in a situation where moderate thermal ionization may exist. In such a situation a steady DC voltage, even at reduced level, may drive unwanted thermal currents. The use of controlled voltage pulses, either alone or superimposed on a low DC base can reduce the thermal current so that the net current is at the desired level. There is no physical reason to expect that the added degrees of freedom provided by pulse energization will not allow control of total current at the high temperature conditions where moderate thermal ionization may exist.

In summary, it is believed that if thermal ionization exists it will not preclude the application of electrostatic agglomeration although it may change the manner in which it is applied. In the case of extreme thermal ionization where no voltage can be applied without runaway currents, the agglomerator geometry can be adapted so that the concept is essentially self-operating. With moderate thermal ionization, where independent current and electric field strength is required for optimum operation, pulse energization can be used to control the net current production to reasonable levels.

If Cooperman's calculations are correct, then the worst we should expect is little or moderate thermal ionization which may or may not require the use of pulse energization for control.

Agglomerating Electric Fields in the Agglomerator Section

The purpose of the agglomerator section is to promote agglomeration of particles leaving the concentrator section. The key variables in promoting agglomeration in this section are:

1. Agglomerator geometry

2. Agglomerating electric field

Gas velocity in the concentrator will be maintained in the agglomerating section. This will simplify vessel design. The agglomerator will consist of electrodes of alternate positive and negative polarity, free of corona discharge. The coaxial pipe geometry affords high field strengths because gas breakdown strengths are much higher with this geometry. In the absence of corona, there will be no corona charging in this section. Therefore, inter-particle contact will be primarily due to:

1. Migration of negatively charged particles exiting the concentrator under an applied electric field,

2. Reversal of charge (to positive) upon contacting either of the electrodes and movement in the opposite direction. Both agglomeration and charge reversal will take place at the collector electrode.

3. Agglomeration in the bulk gas stream by Coulomb attraction of positive and negative charges.

The residence time in the ESA for a given velocity will determine the agglomerative effectiveness. It will also determine the cost of pressure vessels.

Gas Velocity Through the ESA

Reentrainment studies have been reported on particles with polydisperse size distributions. It has been found that the particle separation from surfaces depends on the diameter of particles, adhesive force of the particles, and gas velocity. Smaller particles cling more tenaciously to collector surfaces by electrical, adhesive, and molecular forces, and therefore reentrain less than the larger particles. Dry precipitators in boiler and industrial applications reentrain larger particles in the 15-20 micron range more readily above 5 ft/sec velocity for a given corona current density. It is anticipated that higher gas velocities in the ESA will preferentially resuspend those particles much larger than ten microns. Since inter-particle contact and subsequent agglomeration will depend on residence time, the gas velocity and residence time should be studied independently to optimize ESA performance.

High velocity flow through the ESA is chosen as a design philosophy for the following reasons:

1. Pressure vessel size can be much smaller in diameter and more economical than an ESP,

2. Resuspension of particulate due to the high velocity is not a concern as it would be in a precipitator because the resuspended agglomerated particulate will be collected in a downstream cyclone.

Total resuspension of particulate is not essential.

Nature of Particulate Matter

The particulate matter physicochemical characteristics that are important to the electrostatic agglomeration concept are listed as follows:

1. Particle adhesion after contact: a) with the collector surface as well as b) interparticle contact,

2. Particle size distribution,

3. Robustness of particulate,

4. Stickiness of particulate.

Particle Adhesion After Contact

When inter-particle contact occurs near or on the contacting surface by electrostatic forces, the particles will adhere by mechanisms described earlier and summarized below:

Particle adhesion due to the "sintering" effect will occur between contact points of particles. The operating temperature of hot gas cleanup application is in the 1600-2500°F range which is already higher than two-thirds of the fusion point of most particulate matter. Tsao et al have reported agglomerating tendencies of fly ash in a high temperature cyclone and concluded that agglomeration of ash by capillary adhesion is the strongest mechanism at wall temperatures in the 1500°F-1650°F range. Goldberger had conducted tests on the collection of fly ash in a self-agglomerating fluidized-bed burner and concluded that significant agglomeration and growth of bed particles occurred at temperatures as low as 1400°F. Tsao has also reported the particle size distribution before and after agglomeration in the cyclone study. Mean particle size before agglomeration was about five microns (80% below 10 microns) while it was about 30 microns after agglomeration. This data is very attractive in that inter-particle collision for particles less than 10 microns is not high with cyclones in conventional practice and agglomeration will be even higher by the use of devices that employ electrostatic mechanisms.

In addition to the capillary adhesive forces which are likely to have effect on particles in the entire size range, the Van der Waal and dipole forces will be enhanced at high particle concentrations and high electric field strength. Particles in the 0.1-10 micron

range will be acted upon significantly by these forces. The corona current flow through particle interstices will further enhance inter-particle contact at the collector.

It is expected that the concentrator would not only have caused inter-particle contact for particle growth in this section, but also provide the entrained solids with high particle charge for the downstream agglomerator section.

Particle Size Distribution From ESA

Several independent processes of adhesion such as by electrical and capillary forces are involved in the electrostatic agglomerator concept. There exists no prior modelling effort on which confident prediction can be made with regard to quantities of agglomerates formed under varying process and electrical conditions.

What is known, however, is that with high concentration of fine particles and high turbulence, aerosols with sticking tendencies have formed large, mechanically stable aerosols under electrostatically precipitated conditions. Walker has reported that salt cake (Na_2SO_4) aerosols, which are in the one micron size range and have formed stable agglomerates in the 20 to 30 micron range. The same is reported on the agglomeration of carbon black by electrostatic agglomeration. Carbon black aerosols, in the 0.1 to 2 micron range, are routinely agglomerated by an ESP into particles in the 20 to 30 micron range.

Self, has reported substantial growth of particulates in the sub-micron range using alternating electric fields. The results, however, suggest that agglomeration by AC fields is effective only with a high concentration of fines. It should be noted that in the reported work AC fields are used only for particle agglomeration in the bulk of the gas. The method submitted in this proposal depends primarily on agglomeration on the collector surfaces, and additionally, charge reversal by induction affords Coulomb attraction in the bulk. High initial concentrations are not a prerequisite with ESA, because these are achieved near the collector surfaces by electrical separating force.

Our projections estimate that all particulate below 10 microns will be agglomerated to the 20 - 30 micron size levels. Particulate growth will continue to occur for particles above the 30 micron size so that significant drop out from ESA is likely. Collection efficiency can be varied from 50 - 95% by varying the ESA residence time and allowing fallout within the ESA.

Robustness of the Agglomerated Particles

The ability of coal ash to remain physically intact during passage through a high velocity cyclone is important. The body of experimental evidence to confirm particulate robustness comes from the experimental study conducted by Pennsylvania State

University under DOE sponsorship[2].

The experimental set up included a sonic device to promote interparticle contact at room temperature. The agglomerated particulate passed through Mark II Andersen Cascade impactor where the particulates were separated. Both experimental evidence and theoretical considerations confirmed that agglomerated particulate would indeed withstand the shear stresses such as that imposed in a high efficiency cyclone. In another study, Penn State found that agglomerates will hold together at decibel levels of 170, which is equivalent to particle velocity of 150 ft/sec. Cyclone velocities would typically be in the range of 70 to 100 ft/sec.

The above experimental evidence will also apply to the electrostatic agglomeration concept, where the force fields are electrostatic instead of sonic. Furthermore, the ability of agglomerates to hold up at high temperatures increases due to the presence of liquidus species in the coal ash.

The test data discussed above is substantial experimental evidence to warrant confidence in the agglomerator concept. The next step is demonstration at DCFT conditions such as that proposed in the subject contract.

Stickiness of Particulate

At the high temperatures of DCFT exhaust, the particulate could be sticky and conventional cleaning methods may well be inadequate for cleaning the electrostatic agglomerator. Conventional rapping methods may be ineffective, and could damage the components due to high impact stresses.

Non impact devices such as sonic horns are likely to be most suitable for removing sticky ash for DCFT applications. Use of sonic horns to remove sticky ash is not new. Since the early 70's sonic horns have been used for the removal of metallurgical dust from perforated plates and duct work. Applications in cleaning the discharge and collecting electrodes, hoppers, and fluework have been successful on pulp and paper, cement, and power plant electrostatic precipitators.

A frequency of 200-300 hertz at decibel levels up to 130 dB are typically applied. This vibration apparently imparts dislodging forces on dust without impacting materials on which dust has deposited.

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[2]George, W. and Reethof, G., "On the Fragility of Acoustically Agglomerated Sub-micron Flyash Particles," Transactions of the ASME Journal of Vibration, Acoustics, Stress and Reliability in Design, July 1986, Volume 108, pages 322-328.

SECTION III. PROCESS DESIGN

III.1 Experimental Facility

An overall schematic layout of the nominal 1 MMBtu/hr high temperature, high pressure combustion facility is shown in Figure III.1. The facility consists of a reactor, located inside of the laboratory building, connected to the electrostatic agglomerator assembly positioned on a concrete pad outside the building. The reactor is a down-fired, vertical combustor with the exhaust exiting perpendicularly above the ash collection pit. The flue gas passes through the electrostatic agglomerator which consists of a particle concentrator and a particle agglomerator section and then passes through a cyclone. The flue gas next passes through a quench chamber, a heat exchanger, and a pair of pressure control valves. Finally, the products of combustion are filtered through a baghouse before being discharged into the atmosphere. A more detailed schematic of the facility is depicted in Figure III.2. A photograph of the combustor is depicted in Figure III.3.

Other components of the combustion facility also include the remote air/gaseous fuel compressor systems, installed on the west side of the laboratory yard; a data acquisition/control center, a slurry fuel pump and storage tank, a sump pump, and a sump tank. A detailed description of each component which comprises the facility is discussed in Section III.4: Supporting Equipment.

III.2 Combustor Design

The DOE HTHP combustor, shown in Figure III.4, is a down fired, vertical tunnel combustor. The combustor consists of a 2.5 inch thick refractory wall with a water cooled, 10 inch schedule 40 pipe outer shell. Fabricated out of carbon steel, this shell has a nominal wall thickness of 0.365 inch with a bursting strength of 3650 psi. A high density Purocast refractory with a thermal conductivity of 1 W/M°K and a maximum service temperature of 3200°F is used for the refractory linings. The vertical firing chamber is approximately 5 inches in diameter and 52 inches in length. Staging air can be added 3 feet 6 inches downstream of the burner.

The combustor stands 116 inches tall with the 4 ft. x 4 ft. supporting frame. The combustor is joined to the agglomerator by a 2 inch ID by 120 inch long duct, composed of a combination of refractory and water cooled walls, similar in design to the firing chamber section.

III.3 Electrostatic Agglomerator

The electrostatic agglomerator (ESA), as shown in Figures III.5, and III.6, was designed for an internal temperature of 2500°F (1371°C). The internals are exposed to an oxidizing atmosphere and as such, the materials of construction must be able to survive the chemical and physical assaults.

Research into the literature disclosed that there was no metal or alloy that could be used. The prime candidate was a ceramic silicon carbide. A further limitation was found during the initial phase of component design. The forming of ceramic members was limited to sizes that could be handled in the curing oven. Ceramic objects have to be formed in a green state. In this state, the objects have very little strength and much care is needed just to get them into a kiln without breaking them. Vendors have performed many experiments to try to overcome this problem but without success. Because of this, the kilns of the vendors we found were not very large. Only Coors Ceramic Company and Carborundum Company were able to bid on the internals.

The discharge electrode is a solid cylinder 8 feet long and 2 inches in diameter. It has a collar at the top to support it and a rounded bottom to fit inside a guide plate. Generous radii were used at all internal and external corners of all the components to limit stress concentrations. The discharge electrodes used in the charging section of the ESA had corona producing fins along their length. The finned discharge electrode passed through the grounded electrode to generate a potential gradient.

The grounded electrode is a hollow cylinder with an inside diameter of 4 inches and a length of 5 ft 7 1/4 in. A flange at the top supported the electrode in a tube sheet. Figure III.5 shows the assembly of the grounded (collection) electrode. Table III.1 represents the ESA major dimensions and Table III.2 represents the range of process conditions that the agglomerator accommodates.

The tube sheet is composed of three flat pieces, 1 1/2 inches thick. Two are circular segments with four holes in which the grounded electrodes are placed. The third piece fits between the two circular segments. The common edges have keys to help seal the tube sheet. Where ceramic parts meet one another or the refractory wall of the ESA, they were insulated mechanically with a ceramic felt. The tube sheet is supported by the refractory walls.

The lower end of the grounded electrodes pass through a guide plate that is similar to the tube sheet but is made in two pieces. The two pieces leave a 2-inch gap between them. Inserted in this gap is the top of the baffle.

The baffle is made of two pieces that are inserted vertically into the ESA to channel the gas flow through the discharge electrodes (charging section) and then through the agglomerating (smooth, non-discharging) electrodes. The baffles are supported by the refractory of the bottom flange and are keyed together.

The discharge electrodes are supported by a set of plates with a hole for each electrode. Each plate was monolithically designed to a section of a ceramic box beam. The box beams are threaded onto a smaller box beam at assembly. Space between the two boxes is provided so they can be insulated from each other with the aforementioned ceramic felt.

Using the ceramic felt also provides a means of aligning the discharge electrodes so that they are positioned concentrically with the grounded electrodes.

The high-voltage support beam length was limited by the state of the art in manufacture described earlier therefore the beam was made in three sections instead of one. However, the ends of the beam are in an area where the temperature is much lower. Because of this, high alloy steel is used to support the end of the ceramic support beam. It is supported in a way that allows the free differential expansion of the different materials.

These support areas are actually in two satellite vessels that are supported on flanges of the main body of the ESA. These vessels are also the insulator compartments. In the bottom of each vessel is an alumina bushing. The design of the hardware attached through the bushings is one that has been used with great success in the past. It allows the passage of the high voltage and at the same time provides a pressure seal.

Temperature control of the insulator compartments is maintained by cooling coils. One is around the bushing at the bottom of the vessel and the other is at the top of the vessel.

Provision for cleaning the electrodes during the operation of the ESA was not included in the design. Experimentation will be required to determine whether cleaning is needed, and if so, the extent of cleaning required.

The main vessel is lined with 9 1/2-inches of refractory. The inner four inches are high alumina content refractory that is abrasive resistant and has a smooth surface. The rest of the refractory will have a high silica content and a very low thermal conductivity. Stainless steel anchors were welded to the inner wall of the vessel to retain the refractory.

The ESA vessel was designed, fabricated, inspected, and tested in accordance with Section VIII, Division 1 of the ASME Code. Though the expected temperature of the vessel surface is not expected to exceed 300°F (149°C), temperatures as high as 650°F (343°C) can be safely tolerated. A temperature sensitive paint that changes color at 450°F was applied to the outer surface of the agglomerator as a safety feature. Fabrication drawings of the agglomerator assembly are presented in Appendix A.

Access to the inside of the ESA is supplied through flange covers on the top and bottom of the ESA. In addition there are two side body flanges that provide facility for assembly.

Some research was made to find metals that would survive at high temperatures. Those that promise the most success are manufactured by Haynes International. The prime candidate is Haynes Alloy No 230. Designing for low stress levels and allowing adequate corrosion allowance for the estimated life, internals could survive at temperatures of 2000°F or higher.

There were significant delays in the manufacture of the ceramic electrodes. Numerous design meetings were held with the manufacturer to design electrodes that had a chance for success considering structural limitations. Final approved drawings for the ceramic components are included in Appendix B. The discharge electrode was the most difficult component to manufacture. Two discharge electrodes were manufactured successfully and one electrode broke in handling. The discharge electrode was made in three pieces: a) each piece represented 1/2 the length of the entire electrode and b) a ceramic dowel was designed to fit inside the end of each piece and was cemented to both ends, thus completing the assembly for one discharge electrode. The electrode was structurally fragile at the union of the two finned halves.

A set of stainless steel internal components for the ESA was manufactured as well with the exception of the high voltage components. The high voltage components consisted of the high voltage beam, discharge (charging) electrode, and agglomerating (smooth) electrode. The high voltage components were manufactured of hastelloy™, manufactured by Haynes International. The metal internals were to be used in shakedown testing since it was not verified that ceramics were conductive at 1600°F. Also, the ceramics were more expensive and the possibility of thermal shocks during the shakedown of the combustor and ESA may have destroyed the ceramic internals. The drawings for the metal internals are presented in Appendix B along with the ceramic electrodes.

III.4 Support Equipment

III.4.1 Burner/Atomizer Design

The burner (Figure III.7) used for the high pressure/high temperature combustion facility is designed to fire either natural gas or coal water slurry or a combination of the two fuels.

The burner is swirl stabilized using 12 axial swirl vanes oriented at 50° in the primary air annulus. Natural gas can be injected into the primary air just upstream of the burner quarl or injected in an annulus between the slurry gun and primary air annulus. When firing on CWS, air could also be injected into the annulus between the CWS gun and primary air to provide cooling and to prevent recirculation of unburned CWS and ash back onto the burner.

The CWS injector and atomizer was inserted through the center of the burner with the atomizer exit approximately flush with the primary air exit.

The UV sensor was installed at a 45° angle port adjacent to the natural gas inlet. Ignition of the natural gas flame was accomplished using a premixed natural pilot

A curved, refractory quarl was used to feed the burner inputs into the furnace. The quarl exit was parallel to the furnace to delay impingement of the flame on the furnace

walls.

Several atomizers were tested during the commissioning of the HTHP facility. Two atomizers were purchased from Parker-Hannifin (PH) and the general design of these atomizers is shown in Figure III.8. The major difference between the two PH nozzles was in the atomizing air rate. One nozzle (M4) was designed for an air rate of 150 lb/hr, while the second (M5) required only 25 lb/hr. Both Parker-Hannifin designs inject the CWS through two small holes into a swirling air flow. The mixture then exits through the central orifice into the burner. The design inputs for the Parker-Hannifin nozzles are shown in Table III.1.

Table III.3 PARKER-HANNIFIN NOZZLE SPECIFICATIONS

Design	M4	M5
Fuel Type	Micronized CWS	Micronized CWS
Fuel Flow (lb/hr)	100	100
Atomizing Media	Air	Air
Atomizing Flow Rate (lb/hr)	150	25
Atomizing Supply Pressure (PSIG)	316	316
Atomizing Supply Temperature (°F)	100	100
Furnace Pressure (Atm)	15	15

Three Y-jet atomizers were also designed and constructed during this project (Figures III.9 through III.11). The Y-jet designs had exit half angles of 20°, 15° and 0°. The 15° and 20° designs had 4 exit holes while the single hole Y-jet had a single exit hole along the furnace axis. The single hole Y-jet (Figure III.12) produced the most narrow spray angle and also had the largest internal dimensions, minimizing the potential for plugging.

III.4.2 Air/Fuel Delivery System

All combustion and dilution air for the combustor is supplied by an air compressor system, consisting of a primary air compressor and a booster compressor. The primary air compressor is designed to compress the air up to 125 psig and the booster is designed to compress the air flow from 115 psig to a final pressure of 250 psig (see Figure III.13a).

For the primary air stage, an Ingersoll-Rand Model SSR-300H-AAE13 was used with the capacity to deliver 300 SCFM (22.9 lb/min) when compressing air from 0 psig to 125 psig. The compressor is mounted on a steel skid and is piped and wired with the following components:

- Compressor and electric motor assembly, 75 hp
- Oil management and separation system
- air cooled aftercooler
- 460 V/3 HP/60 HZ electrics with Star Delta starting
- 120 gallon, 300 psi, vertical receiver with its pressure gauge and relief valve
- 2 inch NPT schedule 80 carbon steel pipeline interconnecting between the air compressor and its receiver.

For the booster stage, a Corken base mounted lubricated air compressor unit Model 690L9FBA was installed in line with the primary air compressor unit. This booster compressor is designed to deliver 298 SCFM (22.8 lb/min) when compressing air from 115 psig to 250 psig. This unit was plumbed and wired with the following equipment:

- Compressor assembly and 25 HP electric motor
- Suction valve unloaders
- Auxiliary valve for unloader control
- 120 gallon, 300 psi, vertical air receiver with its relief valve and pressure gauge
- 230 V/3 PH/60 HZ electrics with a magnetic motor starter
- 2 inch NPT schedule 80 carbon steel pipeline and necessary fittings to interconnect from the primary stage air receiver to the booster compressor, then to the final stage receiver

High pressure combustion air is then delivered to the combustor via a 2 inch underground pipeline up to the building, where it is split at the discharge of a pressure regulator into two streams: the primary combustion air and the staged combustion air. The primary combustion air stream is introduced to the combustor burner. The staged combustion air is introduced about 42 inches downstream of the burner when dilution air is required. The flow rate of each combustion air stream is monitored using calibrated mass flow meters and is controlled by electro pneumatic valves via a computer. Critical pressures and temperatures of both the combustion and dilution air streams can be measured by a set of pressure transducers and temperature sensors positioned just downstream of each mass flow meter (see Figure III.13a).

One fuel delivery system consists of the natural gas pipeline to the burner (Figure III.13b). In order to overcome the 10 to 15 atmosphere operating pressure of the combustor, a Corken Model 390L9FBAF gas compressor capable of delivering 17.2 SCFM (0.85 lb/min) when compressing natural gas from 7 psig to 250 psig was used. The unit is installed with the following hardware:

- Compressor assembly and a 10 HP explosion-proof electric motor

- Suction valve unloaders
- Solenoid valve for unloader control
- "XP" pressure switch
- 230 V/3 PH/60 HZ electrics with explosion-proof magnetic starter
- 73 gallon, 300 psi, vertical mount steel receiver
- Relief valve and pressure gauge for receiver
- 5 gallon surge tank and its pressure gauge
- 1 inch NPT schedule 80 carbon steel pipeline interconnecting between the building supply to the surge tank, the compressor and its receiver

The high pressure natural gas is connected to the combustor by a one (1) inch underground piping network. A calibrated mass flow meter is used to measure the flow of the gaseous fuel to the burner while the flow rate can be controlled with a one (1) inch electro pneumatic valve. Pressure measurement is provided by a pressure transducer installed downstream of the mass flow meter and temperature sensor. The electronic processing unit of each instrument is linked to a data acquisition system, where the read-outs are displayed on a computer monitor.

The high pressure, natural gas line is also equipped with an electro-mechanical shut-off valve for safety. In an event of a flame failure detected by a UV scanner, the flame safeguard controller will send a signal to the shut-off valve which, in turn, will disrupt the gas flow to the burner. An audible signal alarm will sound along with a warning light.

A flow schematic for the slurry delivery system is shown in Figure III.13c.

Coal Water Slurry (CWS) fuel for the combustor is supplied by a Robbins & Myers Moyno pump. This pump is equipped with a helical stator which, when turned, forms progressing cavities that move the slurry with a uniform flow. The pump has the capacity to deliver 45 lbs/hr to 290 lbs/hr of coal slurry, 30-70% solids, 1.6 S.G. viscosity, with maximum differential pressure of 700 psi. A one (1) inch pipeline is used to transport the CWS from its 107 gallon storage tank to the atomizer of the burner. The slurry flow can be bypassed at the atomizer, routed back to the pump for self-priming. A pressure gauge and pressure cut-out switch preset at 500 psi protected the slurry delivery system from damage in the event of atomizer pluggage. A micromotion mass flow meter is used to measure the flow of CWS to the burner. The computer displayed the mass flow rate in pounds per minute.

The Ingersoll-Rand Model 7T2 air compressor unit provided the atomization air for the slurry. The air delivery rate is 21.6 SCFM (1.65 lb/min) when compressing air from 0 psig. The atomization air compressor is installed with the following equipment:

- Compressor and a 10 HP electric motor
- Low oil level shutdown switch
- Constant speed control
- Automatic condensate drain

- 230 V/3 PH/60 HZ electrics with a magnetic motor starter
- 73 gallon, 400 psi, vertical mount air receiver
- Relief valve and gauge for receiver
- 1 inch NPT schedule 80 carbon steel pipeline interconnecting between the compressor and its receiver

An electro pneumatic valve downstream of a calibrated mass flow meter is used to control the atomization air flow rate (Figure III.13d).

III.4.3 Instrumentation

This section gives specifications for the instrumentation used in the controlling and monitoring process of the combustion facility.

Coriolis Mass Flow Meter

A Micromotion, Inc. flow meter Model D40S-SS is used to measure the flow of slurry fuel to the burner. It is a true mass meter that measures the mass rate of flow directly as opposed to volumetric flow. The meter system consists of a U-shaped flow tube enclosed in a sensor housing connected to a remote flow transmitter. Inside the sensor housing, the U-shaped flow tube is vibrated at its natural frequency by a magnetic device located at the bend of the tube. The oscillation of the pipe and the velocity of the flowing fluid subject each particle fluid to a coriolis-type acceleration that deflects the pipe an amount proportional to the mass flow rate. The sensors feed this information to the electronics unit, where it is processed and converted to a voltage proportional to mass flow rate.

Specifications:

Accuracy:	±0.2% of rate (full scale)
Repeatability:	±0.05% of rate
Range:	0 - 4.5 lb/min
Output:	4 - 20 ma
Operating temperature:	-22 to 131°F
Power:	115 VAC, 60 HZ, 14 watts

Thermal-Type Mass Flow Meters

Gaseous fuel and air flow rates are measured with 4 Fluid Components, Inc. mass flow meters, Model LT81A. Each flow meter consists of an electronic transmitter and sensor installed at each independent piping network. The element in each sensor has two pair of thermowells. One thermowell pair contains a heater and a platinum RTD. The other pair contains only an RTD. The heater preferentially heats the active RTD sensor. The other RTD acts as a reference sensor. Hence, a temperature differential is measured in the flow stream, which is directly proportional to the mass flow rate. The electronic

transmitter includes the flow analyzer, temperature compensator, and a signal conditioner that provides a linear output. These mass flow meters operate independently of density, pressure and viscosity.

Specifications:

Accuracy:	±1% of full scale or ±3% of reading
Turndown Ratio:	Select from 2:1 or 100:1
Operating Temperature:	-50°F to 350°F
Operating Pressure Ratings:	Up to 1250 psig for flow element
Operating Power:	115 VAC, 60 HZ, 15 Watts
Output:	0 - 10 Vdc @ 2 ma max current
Range:	0 - 499 lb/hr for main air
	0 - 400 lb/hr for staged air
	0 - 200 lb/hr for atomizing air
	0 - 150 lb/hr for natural gas

Pressure Transducers

Static pressure in the combustion facility are continuously monitored with seven (7) Sensotec, Inc. pressure transducers, Model Z/727-16 and Z/727-19. Four transducers are located on the air/fuel delivery pipelines: natural gas, main air, staged air, and atomization air. The other three transducers are positioned at key locations on the electrostatic agglomerator assembly, as depicted in Figure III.14, the first (A) at the two inch duct, midway between the combustor and the agglomerator the second (B), located at the discharge of the heat exchanger; and the third (C), downstream of the two pressure control valves.

The Sensotec pressure transducer contains a pressure sensor coupled with a compensation network. The sensing element consists of four (4) identical piezo-resistors inside a thin circular silicon diaphragm. Pressure causes the thin diaphragm to bend, inducing a strain in the diaphragm and also in the buried resistor. The resistor values will change depending on the amount of strain they undergo, which depends on the amount of pressure applied to the diaphragm. Hence, a change in pressure is converted to a change in resistance translated into electrical output. This output is directly proportional to the actual pressure.

Specifications:

Excitation Voltage:	28 Vdc
Output Voltage:	0 - 5 Vdc
Full Scale Capacity	0 - 300 psia Model Z/727-16
	0 - 500 psia Model Z/727-19

Gas Analysis Instrumentation

The continuous monitoring system for gaseous species are measured on a dry basis with the following analytical instruments:

Species	Manufacturer	Model No.	Measurement Method
Oxygen	Teledyne Analytical	326A	Polarographic
Carbon Monoxide	ACS, Inc.	3400	Non-Dispersive IR Spectromet
Carbon Dioxide	ACS, Inc.	3400	Non-Dispersive IR Spectromet
Nitrogen Oxides	Thermo Electron Corp	10A	Chemiluminescent
Sulfur Dioxide	Western Research	721ATZ	UV Photometric

These instruments are calibrated several times per day using known calibration gases. The output of these instruments are monitored continuously by both a Yokagawa Hybrid Recorder and the PC based data logging system. Flue gas samples are transported to the instruments on a teflon sample line and are withdrawn by a diaphragm-type vacuum pump at a single point just downstream of the pressure control valves of the electrostatic agglomerator. The samples first passed through both a condensate drop-out and a refrigeration type drier to remove water vapor, then through a filter before being routed to each instrument for analysis.

A discussion of each instrument is included in the following sections.

Oxygen

A Teledyne Model 326A oxygen analyzer is used to determine the oxygen content of the flue gas sample. Oxygen in the exhaust gas diffuses through a Teflon membrane and is reduced on the surface of the cathode. Oxidation occurs at the anode internally and an electric current is produced that is proportional to the concentration of oxygen. This current is measured and conditioned by the instrument's electronic circuitry to give a final output in percent O_2 by volume for operating ranges of 0% to 5%, 0% to 10%, and 0% to 25%.

Specifications:

Precision:	±1% of full scale
Response:	90% in less than 40 seconds
Sensitivity:	1% of low range
Linearity:	±11% of full scale

Ambient Temperature Range:	273K to 325K (32F to 125F)
Fuel Cell Life Expectancy:	40,000 + hrs.
Power Requirement:	115 VAC, 50-60 HZ, 100 watts
Output:	4-20 MA

Carbon Monoxide and Carbon Dioxide

Carbon monoxide and carbon dioxide concentrations are measured by an Automated Custom System, Inc., Model 3400 non-dispersive infrared CO/CO_2 dual analyzer. The instrument measures the differential in infrared energy absorbed from energy beams passed through a reference cell (containing a gas selected to have minimal absorption of infrared energy in the wavelength absorbed by the gas component of interest) and a small cell through which the sample gas flows continuously. The differential absorption appears as a reading on a scale of 0% to 100% and is then related to the concentration of the species of interest by calibration curves supplied with the instrument. A linearizer is supplied with each analyzer to provide a linear output over the range of interest. The operating range for the CO is 0-1000 ppm, while the range for the CO_2 is 0 to 20%.

Specifications:

Repeatability:	±0.5% Scale
Noise:	Less than 0.5% Full Scale
Ambient Temperature Range:	-5 to 45°C
Sample Gas Temperature Range:	0 to 55°C
Span Drift:	Less than ±1% Full Scale/24 hrs.
Zero Drift:	Less than ±1% Full Scale/24 hrs.
Response Time:	90% of Full Scale 1 second at 6 liter/min.
Linearity:	Better than ±1%
Standard Outputs:	0-1 VOC Selectable
	0-10/100/1000 or 4-20 ma
Sample Flow Rate:	1 liter ±0.5 liter/minute
Power Requirement:	115 FAC, 60 HZ, 30 watts

Nitrogen Oxides:

The oxides of nitrogen monitoring instrument used is a Thermo Electron chemiluminescent nitric oxide analyzer, Model 10A. The operational basis of the instrument is the chemiluminescent reaction of NO and O_3 to form NO_2 in an excited state. Light emission results when excited NO_2 molecules revert to their ground state. The resulting chemiluminescent is monitored through an optical filter by a high sensitivity photomultiplier tube, the output of which is electronically processed so it is linearly proportional to the NO concentration.

Air for the ozonator is drawn from ambient through an air drier and a 10 micron filter element. Flow control for the instrument is accomplished by means of a small bellows pump mounted on the vent of the instrument downstream of a separator which ensures that no water collects in the pump.

The basic analyzer is sensitive only to NO molecules. to measure NO_x (i.e., NO + NO_2), the NO_2 is first converted to NO. This is accomplished by a converter, which is included with the analyzer. The conversion occurs as the gas passes through a thermally, insulated, resistance heated, stainless-steel coil. With the application of heat, NO_2 molecules in the sample gas are reduced to NO molecules, and the analyzer then reads NO_x, NO_2 is obtained by the difference in readings obtained with and without the converter in operation.

Specifications:

Accuracy:	1% of Full Scale
Span Stability:	±1% of Full Scale in 24/hrs.
Zero Stability:	±1% ppm in 24/hrs.
Power Requirement:	115 ±10V, 60 HZ, 1000 watts
Response:	90% of Full Scale in 1/sec. (NO_x mode); 0.7/sec. (NO mode)
Output:	4-20 ma
Sensitivity:	0.5 ppm
Linearity:	±1% of Full Scale
Range:	2.5, 10, 25, 100, 250, 1000, 2500, 10,000 ppm Full Scale

Sulfur Dioxide

Continuous analysis of sulfur dioxide concentration in the flue gas sample is accomplished with the use of a Western Research Model 721AT2 sulfur dioxide analyzer.

The analyzer design is based upon a single source emitting the appropriate wavelength. The radiation from the source is dropped by a single pair of narrow band pass radiation rejection filters continuously rotated through the radiation path and then split into two paths; measuring the reference. The measuring path contains the cell through which the sample is passed, the reference path contains the "sealed" sample cell which is filled with instrument quality air.

The radiation passed by the cells is then detected by a pair of photomultiplier tubes (PMT); one for each radiation path. It is these signals which are used in the calculation of the final output.

Specifications:

Precision:	±1% of Full Scale

Response:	90% of Full Scale in 15/sec.
Sample Flow Rate:	1 to 5 liters per minute
Ambient Temperature Range:	32°F to 125°F
Output:	4-20 ma or 0.1 to 1 Vdc
Power Requirement:	115 VAC, 60 HZ
Range:	0 - 500 ppm or 0 - 5000 ppm
Linearity:	±1% of Full Scale
Range:	2.5, 10, 25, 100, 250, 1000, 2500, 10,000 ppm Full Scale

III.4.4 Control System

The high temperature, high pressure combustion facility also contains a data acquisition/control center located adjacent to the test combustor. Included in the system are an IBM based PC, process I/O hardware and control software. The data acquisition system monitored the fuel and air flow rates, critical temperatures and pressures, and flue gas composition. The computer also controlled the combustor inputs and pressures displayed real-time process values.

The process hardware consists of a series of digital and analog controller boards which operate as slave devices to the host computer. Each board contains a microprocessor that carries out serial communications with the computer and also perform control functions at each I/O channel. The boards are mounted on the Opto 22 I/O mounting racks along with the corresponding modules, either an analog to digital converter or vice versa, to each of the process instruments(i.e., control valves, thermocouples, pressure transducers, mass flow meters, etc) Therefore, when combined with the I/O mounting racks and modules, the controller boards can perform the following functions:

Input Average
High/Low Limits Monitoring
Peak and Valley Recording
Gain and Offset Calculations
Latching
Counting
Pulse Measurement
Robotics
Numerical Control

The process control software utilized is called Specifix by Intellution, Inc. It is subdivided into three primary programs: the database builder, draw, and view.

The database builder links the facility computer to the I/O hardware. It is a fill-in-the-blanks program that is used to configure and maintain the process database in Specifix. The tag names, I/O addresses, and control parameters were defined according

to the combustion facility configuration and entered into the software function blocks. Specifix then uses the blocks to control, monitor and store data.

Draw links the database to the computer display. It enables the operator to build displays. Display consists of two elements: graphics draw to depict the combustion equipment, and links to retrieve process values from database.

View links the operator to the process. It provides a true window into the combustion facility process. View enables the operator to see the real time process values from the database, at the same time allowing the operator the ability to change the I/O parameters from the computer. Graphically display of the archived data can also be created from view.

III.4.5 Solid Sampling System

Particulate samples were withdrawn isokinetically from the flue gas through two different sample ports (Figure III.15). One is located at the outlet (1) of the electrostatic agglomerator and the other at its outlet (2). A third port (3), which is positioned after the cyclone, was also available for sampling.

Particulates were collected inside a pressure vessel (Figure III.16) that contains a ceramic thimble with 5 micron pores and a 47 mm glass-fiber filter to retain particles as small as 0.3 micron. The dry particulate mass is determined gravimetrically. The sample is withdrawn using a stainless-steel water cooled probe (Figure III.17) positioned in the middle of the 2 inch duct. The probe is secured to a 2 inch flange by eight bolts. Connected to the sampling probe is a series of control valves, pressure vessel, thermocouples, pressure gauges, condensate dropouts, rotometer, moisture absorbing chamber and a dry gas meter as shown schematically in Figure III.18. The assemblies, up to and including the pressure vessel, are heat traced to maintain a temperature of 250°F (121°C).

The solid sampling procedure used was as follows:

1. The bypass valve was opened allowing any dust built up in the probe to be blown out. The valve was left open until the stream was free from moisture.

2. The bypass valve was closed and the valve leading into the pressure chamber was opened allowing the sampling chamber to reach the ESA pressure.

3. The control valve at the exit of the sampling chamber was opened and the sampling rate was set to obtain iso-kinetic flow at the sampling nozzle.

4. The required sample volume, as measured on the dry gas meter, was taken.

5. The inlet valve to the sampling chamber was closed allowing the chamber to depressurize while still measuring the flow through the rotometer and dry gas meter.

6. The sample was recovered and dried. The particulate concentration was calculated as the dry sample weight divided by the dry gas volume.

An Anderson impactor could also be placed inside the pressurized sampling chamber. The impactor measurements were taken using the same basic procedure as the total particulate measurements.

III.3.2 Cyclone

There has been extensive research into the design of high efficiency cyclones. After investigating, it was decided to use the Stairmand design. The Stairmand design was first proposed in 1951 by C. J. Stairmand. The Stairmand design has been used extensively with a great deal of success.

To cover the entire range of gas flow and maintain a reasonable range of velocity, it was found that three cyclones were needed. The initial idea was to put three in one vessel and block the flow in those not being used. But the difficulty of directing the flow to the three inlets with adequate velocities soon became apparent and this idea was abandoned.

The next design investigated was the use of two vessels with one cyclone in each vessel. These cyclones would be the same size and the plan was to expand the range of experiments by using them in both parallel and series arrangements. However, when the layout was made, it was apparent that the length of ducting became excessive. This would cause a large temperature loss to the flue gas.

The final design utilized only one vessel with the ability to house three different sized cyclones, one at a time (Figure III.19). Some thought was given to using radial vane inlets in the tops of the cyclones. But the combination of difficulty in ducting the flow to them and the likelihood of the small openings becoming plugged discouraged their use.

Instead, it was decided to use a transition piece that was made to fit each cyclone inlet and carry the flue gas directly from the inlet into the vessel to the cyclone inlet. These would be held in place by a high temperature cement which stays soft enough to easily dismantle the parts when changing cyclones. The cyclones were supported in a plate with a hole that could be shimmed to fit the smaller cyclones. The cyclone outlet tube was inserted in the top head of the vessel.

The cyclone vessel has an ash collection volume to accommodate almost seven hours of operation based on the largest rate of particulate flow and assuming that none

is deposited anywhere else in the system. The vessel is 6 ft 6 in high by 2 ft 4 in in diameter.

The ceramic cyclones range in diameter from 3.19 inches to 4.72 inches. The height of each is four times the diameter ranging from about 13 to 19 inches. The cyclones were designed to operate with a velocity from 70 fps to 100 fps.

III.3.3 Pulsed Energization Hardware

The normal energization voltage waveform for electrostatic precipitation is a 60 cycle half or full wave rectified negative DC. Pulse energization is a generic term which implies the use of a series of fast-rising voltage pulses of short duration, compared to a 60 cycle sinusoidal waveform. The concept is not new. In fact, work on pulse energization systems was done at Research-Cottrell in the late 1940's and early 1950's by Messrs. White and Hall. Even though this earlier work showed promise from a process point, it never got beyond the laboratory and a few field demonstrations because at that time we were using mechanical switching systems of questionable reliability, and results in the field were not conclusive. The significance of the work since 1974 is the development of an all-electronic pulse system of high reliability to actual full-scale commercial practice. Pulsed energization super-imposes high frequency pulses of short duration on top of the normal negative 60 cycle energization voltage waveform. The pulse energization system consists of a pulse power supply, a driver unit consisting of charging and coupling capacitors, an electronic switch, air-cooled driver and damper resistors, and controls. A schematic circuit diagram of the system is shown in Figure III.20. An illustration of the superimposed pulses is illustrated in Figure III.21.

The application of high frequency pulses to normal base waveform allows for much higher instantaneous peak electrical fields which, in turn, results in more effective particle charging and migration. Pulsed energization yields a uniform diffused corona as compared to D.C. energization. In addition, much higher instantaneous peak electrical fields are achieved and higher particle charging and migration are possible. Further, as discussed earlier, a good control of power production for a given geometry is possible with pulsing while maintaining high peak fields.

Use of a "commercial" hardware system, however, was not suitable for the laboratory scale tests where gas flow can range from 50 - 90 acfm. Electrical parameters such as capacitance and impedance of the ESA system are necessarily defined by its geometry and this laboratory scale ESA was too small for a commercial hardware system. Any such system will be necessarily mismatched on this laboratory application. Also, the flexibility to vary parameters such as pulse height, pulse amptitude, pulse width and pulse frequency over a wide margin were needed in this test program plan necessitated a custom made design.

Research-Cottrell favors the use of one to two microsecond width pulses for the DCFT application to provide additional control in varying the power consumption. Such

a system has been pioneered by Research-Cottrell and Ion Physics Corporation. Other commercial systems have pulse widths in the 50 to 200 microsecond range.

Appendix C contains specific information regarding the "PES-2000" pulse energization system identified as being suitable for the ESA project.

SECTION IV DESIGN OF PLAN

IV.1 Planned Test Program

Electrostatic agglomerator performance depends on the nature of ash and the agglomerative behavior of the ash in addition to the parameters such as residence time, applied electric field strengths, and the operating temperatures. Therefore the planned test program included as variables: operating temperature, gas velocity, and the applied electrical pulsed energization levels for a given process condition. Also, process conditions such as coal type (sulfur content) and sorbent injection levels were planned as controllable variables.

The key goal was to identify those parameters that affected the maximum growth of particulate by electrostatic agglomeration. Data collection that was planned included the particulate loading and size distribution at the agglomerator inlet, outlet, and cyclone outlet. Also, to be measured was the sorbent injection rate SO_2 concentrations at the particulate metering locations, and the pressure and temperature at these locations.

Shakedown consisted of first debugging the individual components and support systems for the combustor. The combustor was designed to fire on both natural gas or coal-water-slurry. Natural gas combustion was used to cure the refractor material and provide information on temperature and pressure ranges of the system as well as temperature stability. Combustion coal-water-slurry was essential for providing coal derived fly ash to the ESA. The individual components and systems that supported the combustor and analytical systems are listed below:

- Main air compressor
- atomizing air compressor
- natural gas compressor
- coal water slurry pump
- pressurizing orifice valve
- control valves
- mass flow meters
- pressure transducers
- thermocouples
- emission gas quench system
- continuous gas analyzers
- flame out alarm system
- data acquisition hardware and software

The combustor and agglomerator were checked for leaks. Leaks were stopped up to an operating pressure of 15 atmospheres.

Following checkout of the individual components, control systems, continuous analyzers, and data acquisition system the combustor was fired on natural gas. During

start up on natural gas the following tasks were completed:

- cure castable refractory
- Develop O_2/CO curves for natural gas operation to determine safe operating excess air levels over the load range.
- Determine load/exit temperature curves at 5%, 25%, 50%, and 100% excess air over the load range.
- Check control software logic for load under natural gas operation.

After successful continuous operation of the combustor fired on natural gas, coal-water-slurry shakedown testing was to be implemented.

During shakedown of the combustor the temperature maximum of the system was limited to 1800°F because of the temperature limitation of the stainless steel agglomerator internals (for example baffle, tube-sheet, and collection(grounded) electrodes).

At the time combustor operation was being tested for temperature stability and pressure stability on natural gas, the electrostatic agglomerator was to be tested for electrical stability by plotting current versus voltage relationships under different temperatures and pressures. Also, the temperature profile across the agglomerator was to be measured. Successful demonstration of ESA electrical performance was demonstrated in the range of 800°F to 1600°F and from 1 atmosphere to 15 atmospheres. Under the shakedown test conditions of the agglomerator the corona producing electrodes (concentration section) were inserted in place of the smooth electrodes (agglomerating section). This was done so that particles leaving the concentration section could be sampled for charge-to-mass measurement once coal water slurry combustion was successful.

The intent of the charge-to-mass measurement determination on the particles exiting the concentrator section was to provide further evidence of the electrostatic charging capabilities under high temperature, high pressure conditions. After successful demonstration of electrostatic charging of fly-ash particles using the charge-to-mass measurement technique the ESA was to be reassembled as planned; the discharge (finned) electrodes were to be placed in the inlet (concentrating section) of the agglomerator and the non-discharge (smooth) current producing electrodes were to be placed in the outlet (agglomerating section) of the ESA.

Completion of system debugging (shakedown) was planned with the successful operation of the combustor fired on coal-water-slurry and with the ESA operating with metal internals at a temperature of 1800°F at 10 to 15 atmospheres. Measurement of particle concentration and particle size distribution at the inlet, outlet, and outlet cyclone were planned. Also planned was the monitoring of flue gas constituents by continuous monitors (CO, CO_2, SO_2, O_2, and NO_x).

IV.2 Unanticipated Problems and Corrective Actions

Combustor startup and operation with natural gas were successful after minor corrections were implemented.

Combustor startup issues that needed correction are listed as follows:

1. Water jacket to combustor required new plumbing to increase cooling water flow,

2. Air compressor was purchased as a used unit and needed replacement parts,

3. The flame out sensor repeatedly went off. An air filter was placed in line with the air compressor to remove fine oil mist that coated the sensor window,

4. Minor gas leaks in feed line were corrected.

Burner Modifications for Natural Gas

There were two locations in the burner for natural gas input: 1. an annulus around the CWS atomizer, and 2. radial injection ports downstream of the primary air swirl vanes. Initially, natural gas was plumbed to the radial location, with high pressure "core air" plumbed to the annular location to cool and protect the CWS atomizer. However, due to difficulty experienced in lighting off the combustor with gas, the annular location was used for natural gas input.

Coal-Water-Slurry (CWS) Combustion

During light off with CWS, two problems were identified with this arrangement. First, the atomizer became too hot and caused the atomizer internal parts to become seized together which prevented atomizer cleaning. Second, the CWS was interfering with the UV sensor while gas was introduced at the annulus, causing the combustor to shut down, even when there was a stable gas flame.

Piping for pressurized natural gas was modified to allow gas to be directed to either the annular or radial location. After the combustor had reached operating temperature, gas could be switched from the annular start up location to the radial location. With gas directed to the radial location and core air directed to the annulus, the combustor was operated with CWS until the atomizer became plugged without a loss of UV signal from the gas flame. In addition, after operation with CWS, the nozzle could be completely disassembled and cleaned without seizing up internally.

However, sustained combustion of CWS as not achieved. Different nozzle designs were tried at varied locations using different atomizing (air/slurry) conditions. Several experiments were successful in igniting the slurry but the flame would be unsteady and eventually burn out after 20 minutes. The orifice of the atomizing nozzle would eventually plug rendering the system ineffective in achieving a steady temperature.

Fly-Ash Slurry to Replace CWS

It was decided to abandon CWS combustion as a means to introduce ash to the electrostatic agglomerator. A fly-ash-slurry mixture was thought to be an effective means of introducing fly ash into the agglomerator without having to sustain combustion of CWS. Also, since fly ash has smaller diameter particles as compared to pulverized coal the plugging problems of atomizing nozzles could be alleviated. A 20% ash-slurry mixture with water would yield the same grain loadings as attempted with CWS combustion. Coal derived fly-ash was obtained from Nevada Electric's electrostatic precipitator hopper. Nevada Electric burns pulverized coal.

Attempts to atomize 20% ash-slurry mixture in the combustor while firing 1.5 mBtu/hr on natural gas were successful. Flame out problems were corrected and no plugging problems were encountered. However, the temperature of the combustor (Ca 2700°F) melted the fly-ash and the combustor acted as a slagging combustor. The efficiency of ash collection on a weight by difference calculation (input ash versus ash collected in the slag pit) was nearly 100%. Sampling of the agglomerator inlet yielded 97% and 95% ash collection efficiency in the combustor. The remaining fly ash entering the agglomerator was too low in concentration to be of any use.

The burner was modified by replacing the blind flange, directly opposite to the agglomerator inlet (Figure IV.1), with a nozzle that could inject ash slurry. In this arrangement the slurry spray could be directed to the 2" ID inlet section of the agglomerator. By using the nozzle opposite to the inlet of the transport duct 50% of the ash was transported to the inlet connection of the agglomerator at 1680°F. However, agglomerator inlet temperatures of 1680°F were not sufficient to heat the agglomerator internals above 1350°F. When the inlet temperature was increased to 2100°F the ash melted and impacted on the walls of the inlet duct.

It was then discovered that some shakedown runs performed on coal water slurry combustion trials had temperature overruns because the mass flow controllers of combustion air and natural gas were out of calibration by as much as a factor of 2. Actual temperature measurements at the agglomerator were not recorded. The bottom flange of the agglomerator was disassembled to inspect the agglomerator stainless steel internals. It was discovered that the stainless steel baffle was destroyed by the excessive temperatures as shown in the photograph of Figure IV.2. Also, the inlet collection electrodes were warped (Figure IV.3) which prevented the insertion of the corona generating electrodes as prescribed in the original agglomerator design.

The damaged stainless steel baffle was removed and a ceramic (silicon carbide) baffle was installed. Replacement of collection electrodes as well as the labor involved for installation were considered too costly to be implemented. The decision was made to leave the agglomerator corona producing electrodes in the gas exit side of the agglomerator. The damaged inlet tube sheet and stainless steel collection electrodes were left intact.

Use of a fly ash slurry (fly ash from Nevada Power) was not possible at an agglomerator inlet temperature above 1800°F. The suspended fly ash particles were liquid and were captured by the transport duct leading to the agglomerator inlet. Disassembly of the agglomerator bottom flange revealed that the agglomerator inlet (2" ID) was acting as a glass blowing tube. A brown-green molten bulb of glass was attached to the agglomerator refractory at the inlet, Figure IV.4.

Injection of a fly ash slurry mixture proved to require more shakedown time than was available in the budget. A slurry of alumina in water was prepared to replace the fly ash slurry. Alumina has a melting point above 3000°F so the problem of ash melting was overcome.

As a consequence to the irreparable damage to the grounded electrodes and tube sheet of the inlet (concentrator) section the ESA configuration was no different than a tube type electrostatic precipitator. The concept of electrostatic agglomeration could not be tested within the budget appropriation. However, the testing of the tube type ESP system at temperatures of 1800°F and pressures up to 15 atmospheres was considered worthwhile.

A one week particle sampling shakedown plan was designed to examine the following variables affect on alumina collection efficiency:

1. gas velocity.

2. Particle inlet concentration.

3. ESP power on at 30 KV and power off.

Also, to be examined in the week long test period was the particle size distribution of the inlet and outlet and the particle charge-to-mass ratio at the outlet of the ESP. A Faraday cage type sampling device was designed and fabricated by Dr. Duane Pontius of SRI, International, Birmingham, Alabama for the purpose of obtaining charge-to-mass ratio data.

SECTION V. RESULTS - SHAKEDOWN TESTING

V.1 Combustor

Range of ESA Operating Pressures, Flow Rates, Velocities & Temperatures

During the shakedown of the facility, the ESA was operated steadily over the following range of pressures and heat inputs.

Pressures: Atmospheric to 220 psia
Heat inputs: 0.5 to 1.5 MMBtu/hr

These input conditions generated ESA inlet temperatures in the range of 700°F to 2000°F and velocities from 3 ft/s to 80 ft/s. However, during these tests, each pressure and temperature was run for only a relatively short period of time without the ESA reaching temperature equilibrium.

During the particulate collection efficiency tests, two combustor inputs were run for time periods of 24 hours or greater, allowing the combustor and ESA to reach equilibrium. These two combustor input conditions were:

Heat Input MMBtu/hr	Flow ACFM	Pressure Atm.	Excess Air	ESA Inlet Temp °F	ESA Outlet Temp °F
1.0	71.8	12	25	1770	1400
1.2	100.2	12	50	1750	1350

These two cases can be used to fix the heat losses in the combustor and transfer piping to the ESA and generate a map of ESA inlet temperature and ESA velocities as a function of the heat input and excess air. For the cases listed above, the heat losses total about 430,000 Btu/hr between the burner and the ESA inlet. Assuming the heat losses remain approximately constant for loads between 0.8 and 1.5 MMBtu/hr, the operating map of ESA inlet temperatures and ESA velocities can be calculated. As shown in Figures V.1 and V.2, a range of ESA inlet temperatures from 2500°F to 1300°F can be achieved for combustor heat inputs from 1.5 MMBtu/hr to 0.8 MMBtu/hr. This range of operating temperatures corresponds to ESA velocities ranging from 8 ft/s to 3 ft/s at a pressure of 180 psia.

Heat-Up Time

The electrostatic agglomerator temperatures, during its initial warm-up period, are illustrated in Figures V.3 to V.6. These profiles, which cover a span of 48 hours, are for a constant combustor thermal input of 1.0 MMBtu/hr. Temperature measurements are collected at four key locations on the agglomerator. As shown in Figure V.7, these

locations include the ESA inlet (1), the ESA outlet (2), the ESA top section where the discharge electrodes are housed (3), and the flue gas exit (4). Type K aspirated thermocouples were used at locations 1, 2 and 3, while at location 4, the thermocouple was non-aspirated.

It should be noted that the temperature measurements of the ESA for the initial 2 1/2 hour heating time were not recorded. The heat-up time of the ESA from ambient temperature and of atmospheric pressure worked out to be 10 1/2 hours before reaching thermal equilibrium (23:00 hrs in Figure V.3).

At 23:00 hours, the unit was pressurized to 10 atmospheres. Once the pressure was increased, the ESA temperature dropped about 600°F over a 3 hour period. The ESA temperatures then began to increase reaching equilibrium again after 10 additional hours (Figure V.4).

When the ESA was at equilibrium, the inlet temperature was approximately 1800°F with an exit temperature of 1450°F. The thermocouple at the top of the ESA read about 200°F cooler than the ESA outlet. It is believed that the explanation for the low temperature measurement at the ESA top can be attributed to the thermocouple being outside the gas flow, in a region of recirculating flow cooled by the electrical bushings.

Atomizer Performance

Five atomizers were tested during the commissioning of the facility on CWS. The first nozzles tested were the two Parker-Hannifin atomizers. Both the normal and reduced air capacity designs (Section III.4.1) were tested. Both atomizers became quickly plugged with CWS at the 0.05 inch orifices located inside the nozzle. Upon recommendation of the manufacturer, the CWS orifices were enlarged to 0.063 inches. This modification resulted in a significantly longer operating period on CWS without clogging. The CWS was injected for as long as an hour before the atomizer clogged. However, while slurry was injected at rates ranging from 0.4 to 2.0 lb/m, the flue gas instrumentation indicated that very little of the CWS was actually burning, i.e. only a small decrease in O_2 and slight increase in SO_2 was observed. After the atomizer became blocked, the furnace was depressurized and the ashpit was found to be full of moist slurry. Additionally, a large amount of coke was found deposited on the furnace refractory walls, indicating impingement of the slurry on the walls.

The Y-jet atomizers were then tested on the combustor. Impingement of the CWS on the refractory wall still occurred, even with the 15° angle Y-jet nozzle. Additionally, the slurry flow tended to be somewhat erratic indicating plugging of the passages in the Y-jet atomizers was also occurring. The slurry was injected for about 20 minutes after which time the slurry injection was stopped and the furnace was depressurized. Again, the ashpit was found to contain moist slurry and coke was deposited on the furnace walls.

Another attempt was made to burn the CWS by further increasing the slurry holes in the Parker-Hannifin nozzle from 0.063" to 0.078".

When the combustor was fired using the modified Parker-Hannifin nozzle, a stable slurry flame was established for a period of approximately 30 minutes. A visible coal flame could be seen through the combustor sight glass and through the UV detector port. In time, the top portion of the combustor cooled and the flame became more diffuse, and after 20 minutes, the atomizer became blocked.

During the period the CWS was burning, the gaseous emissions remained relatively steady at 3% to 4% O_2 and 13% to 14% CO_2, indicating that near complete burnout was achieved. These tests were conducted at a combustor pressure of 180 psia.

At the conclusion of the test, the combustor was examined. Considerable slag and coke was found along the combustor walls and the ashpit still contained wet, unburned slurry. These observations indicate that although the slurry was burning, a fraction of the slurry still impinged on the reactor walls.

Because of the project time and budget constraints, a decision was made to inject an ash slurry into the combustor while burning gas rather than continue improving the combustor performance on CWS. It was believed that very steady CWS combustion over at least an eight hour time period would be required to obtain acceptable agglomerator operating data. Based on the experience with firing CWS in the 5 inch combustor, the consensus was that achieving the required stability with CWS would demand more time than remained on the project.

The method chosen to generate the ash laden flue gas stream required to assess the agglomerator performance was injection of flyash into natural gas flue gases. A single hole Y-jet atomizer was used to inject an ash/water slurry along the axis of the combustor. Experiments were conducted injecting a 20% bituminous coal slurry into the burner. The slurry was injected without problems for long periods of time (greater than 8 hours). However, measurements showed that the majority of the ash slagged on the refractory walls and was effectively remove from the flue gas stream.

Particulate Samples No. 1, 3 and 4 (Table V.1) were taken at the ESP inlet when the ash/water slurry was injected at the burner. When the ash was injected at the burner, an average of 97% of the injected ash did not reach the agglomerator inlet. Examination of the combustor, after injecting ash at the burner top, showed a heavy slag layer coating the furnace walls.

In order to inject the ash at lower temperatures, the slurry atomizer was moved to the clean-out port located directly opposite the horizontal duct leading into the ESA (Figure IV.1). Particulate Samples 2, 5 and 6 (Table V.1) were taken when the slurry was injected directly into the horizontal duct.

When the ash was injected directly into the horizontal duct leading into the ESP, a major fraction of the ash still formed slag on the walls unless the combustor load was reduced to lower the temperature. At reduced load, 40% of the injected ash was measured at the agglomerator inlet.

In order to operate the combustor at high temperatures while maintaining an acceptable ash loading into the ESP, a decision was made to use an $Al(OH)_3$/water slurry rather than a coal ash slurry. The $Al(OH)_3$ slurry was injected at the side port using the single hole Y-jet atomizer. Assuming the aluminum hydroxide completely decomposes to Al_2O_3, i.e. $2\ (Al(OH)_3) \rightarrow Al_2O_3 + 3H_2O$, approximately 80% of the injected solid was recovered at the agglomerator inlet (Figure V.8).

A chronological summary of all combustor and CEM instrumentation raw data is contained in Appendix D under separate cover.

V.2 Electrostatic Agglomerator

Electrical characteristics

Shakedown of the electrostatic agglomerator was first performed with the combustor fired on natural gas. Testing consisted of obtaining current-voltage data under different temperatures and pressures. Data from the current-voltage shakedown tests is contained in Appendix E. Also, Appendix E contains graphical representations of the current-voltage profiles for equivalent temperature while varying system pressure. Higher voltages and lower currents are obtained when system pressure is increased because gas density is increased. Some of the data in graphical form shows that some curves are not smooth. The reason for the lack of smoothness is due to rapid temperature and pressure changes in the combustor. It was discovered after data collection that the mass flow controllers for natural gas and combustion air were out of calibration by a factor of 2 to 3 times above the theoretical flow. This caused rapid changes in combustor temperature and pressure by making minor changes in the flow controller set points. Therefore, deviations from smoothness in the data plots is explained by the rapid fluctuations in the temperature and pressure of the combustor. Data was obtained using a DC current only. The power supply was limited to 30 kV and 30 mA. The controller was manually controlled and as a consequence when a spark occurred the system would shut off automatically.

Operation with Particulate Matter

Sampling of particulate matter was conducted with a ceramic thimble as part of the ASME Method 17 filter train. Samples were collected before and after the ESA within 15 minutes of each other. Simultaneous sampling was not considered necessary since large differences in capture efficiency with the electrostatic power on and power off were expected. All sampling was performed at isokinetic rates at a single point location in the

2" ID duct for 10 minutes.

The configuration of the agglomerator was that of an electrostatic precipitator. Therefore, the objective of sampling was to determine the capture efficiency across the agglomerator with the electrostatic power on and with the power off. The electrostatic DC power was set to 30 kV DC. Pulsed energization was not performed. The effects of ash loading, gas velocity, and electrostatic power on particle capture efficiency were tested. Also, attempts were made to test the particulate inlet and outlet size distribution as well as the charge-to-mass ratio of the particles exiting the agglomerator.

A chronological summary of all sampling data separated by major events is contained in Appendix F as Table F.1. Sample runs 1-6 (Table F.1) utilized a slurry of 20% fly ash injected in the direction of gas flow (straight run) to the agglomerator. The lower ash slurry feed rates yielded a greater inlet particle loading to the agglomerator. Particle losses in the slurry injection system were greater with increased feed loadings. Also, inlet temperatures greater than 1800°F yielded molten ash particles that were removed by the duct between the burner and agglomerator.

Sample runs 7-11 (Table F.1) were performed using a 10% alumina slurry in place of fly ash. Measurements for runs 7-11 were taken at the inlet of the agglomerator. An alumina slurry (10%) feed rate of 0.08 lb/min with 200 scfm flue gas flow proved to provide an adequate particle concentration in the range of 0.93 to 1.5 grains/dscf.

Sample numbers 12-15 (Table F.1) were collected at the agglomerator exit using 10% alumina slurry. Sample #13 developed a leak therefore the test results are void.

Sample numbers 16-40 represent data collected in the shakedown of the electrostatic precipitator while collecting alumina dust.

A summary of sample runs 16-40 is included in Appendix F as Table F.2. Two flow rates: a) 76 acfm and b) 114 acfm were used with the precipitator activated at 30 KV and also with the precipitator off. Ash loadings at the inlet ranged from 4.66 grains/dscf to 0.95 grains/dscf with all other conditions equal, at a charging voltage of 30 KV. The precipitator yielded a capture efficiency of 96.7% at 30 KV at a velocity of 4.9 ft/s. Physical parameters of the precipitator are listed in Appendix F as Table F.3.

A cascade impactor sample of the alumina at the precipitator inlet is included in Appendix F, Table F.4. The MMD of the alumina was 2.9 μm with a GSD of 2.9. One attempt was made to collect the outlet size distribution but the impactor did not pass a post sampling leak test. The pressurizing orifice valve had become eroded from the hot abrasive alumina particles. The damage to the orifice prevented additional data collection.

Two attempts were made to determine the particulate charge-to-mass ratio at the exit of the discharge section. Only one sample had meaningful results. Problems with the other sample were encountered from the current instability of the measurement device under the high temperature and pressure conditions. The coulomb measurement meter

deflected off scale (+) midway through the sample event. The charge-to-mass ratio for the single valid run was on the order of 9 μC/g. Additional data collection attempts became impossible when the systems' pressurizing orifice valve eroded from the hot alumina as mentioned above.

SECTION VI. DISCUSSION AND CONCLUSIONS

Attempts to validate the concept of electrostatic agglomeration were not possible in the shakedown program before budget constraints halted the program. What was learned was that electrostatic precipitation is feasible in the temperature range of 1600-1800°F and at pressures above 10 atmospheres. Thus particulate control from pressurized fluid bed combustors may be accomplished with an ESP. The nature of the ash physicochemical properties, such as melting point and ash adhesive force are important to the successful demonstration of electrostatic agglomeration. Perhaps ash adhesion is even more important to agglomeration as compared to precipitation because ash adhesion is critical for success. Liquid ash particles will present a problem for electrostatic devices as well as barrier filters but sonic cleaning of an electrostatic device may be successful.

In order to demonstrate electrostatic agglomeration there needs to be developed a successful interface between the pressurized coal combustor and hot gas cleanup device. This project ran out of financing before a combustor was developed that could deliver fly ash to the hot gas cleanup device. Designing an electrostatic cleanup device to fit a bench scale combustor that has previously been field demonstrated will offer a greater chance for success.

Collection of the alumina particles under ESP conditions was expected to be on the order of 99% but the resistivity of alumina was on the order of 10^5 ohm-cm. Conductive particles are difficult to capture by an ESP. Also, the flow profile through the 4 collection electrodes was unknown. Uneven flow distribution through the gas passage will scour particles from the collection surface. Another variable that would work against efficient capture is ash adhesive properties. Alumina particles had poor adhesive characteristics at 1700°F. Particles were charged sufficiently (9 μC/g) as determined by the charge-to-mass measurement but did not stick together.

An increase in gas velocity reduces particle collection efficiency in an ESP and this relationship was observed in this program. Also, the precipitator had greater particle emissions with greater inlet ash loadings, from 1 to 4 grains/dscf and this was expected.

It is evident from the work conducted in this program that further research is needed for electrostatic applications in hot gas clean up technologies. Given the limitations of the systems shortcomings that the project was reduced to, there was successful demonstration of effective particle charging at 1700°F and 11 atmospheres. Also, the electrostatic system showed that higher temperature and pressure applications were feasible (neglecting material limitations).

VI.1 Recommendations for Future Designs

The major problem experienced during the execution of the test program was in achieving stable operation on coal water slurry. Two separate problems were

encountered which prevented successful combustion of the slurry; atomizer plugging and impingement of the slurry on the combustor walls. Both the atomizer plugging and spray impingement problems can be primarily attributed to the relatively small scale of the facility.

Although, during the atomizer testing, considerable progress was made in reducing the frequency of atomizer plugging with CWS, the longest run with CWS was approximately one hour. Using a finer grind slurry with the modified Parker-Hannifin nozzle may result in an acceptable performance.

A more difficult problem with the slurry atomization is the impingement of the slurry on the 5 inch internal diameter combustor. The best solution to both the atomizer plugging and spray impingement problems would be to use pulverized coal rather than a slurry for small scale pressurized coal combustor designs. The use of pulverized coal eliminates the atomizer completely and also eliminates the possibility of wet slurry building up in the combustor.

Another consideration for future ESA testing is the difficulty in preventing the ash from slagging on the combustor and transfer piping and never reaching the ESA particularly at gas temperatures above 2000°F. Although removing the ash as slag in the combustor is a desirable feature of a commercial concept, the high levels of ash removal (greater than 95%) achieved with the current combustor design may create difficulties in assessing the ESA removal efficiency.

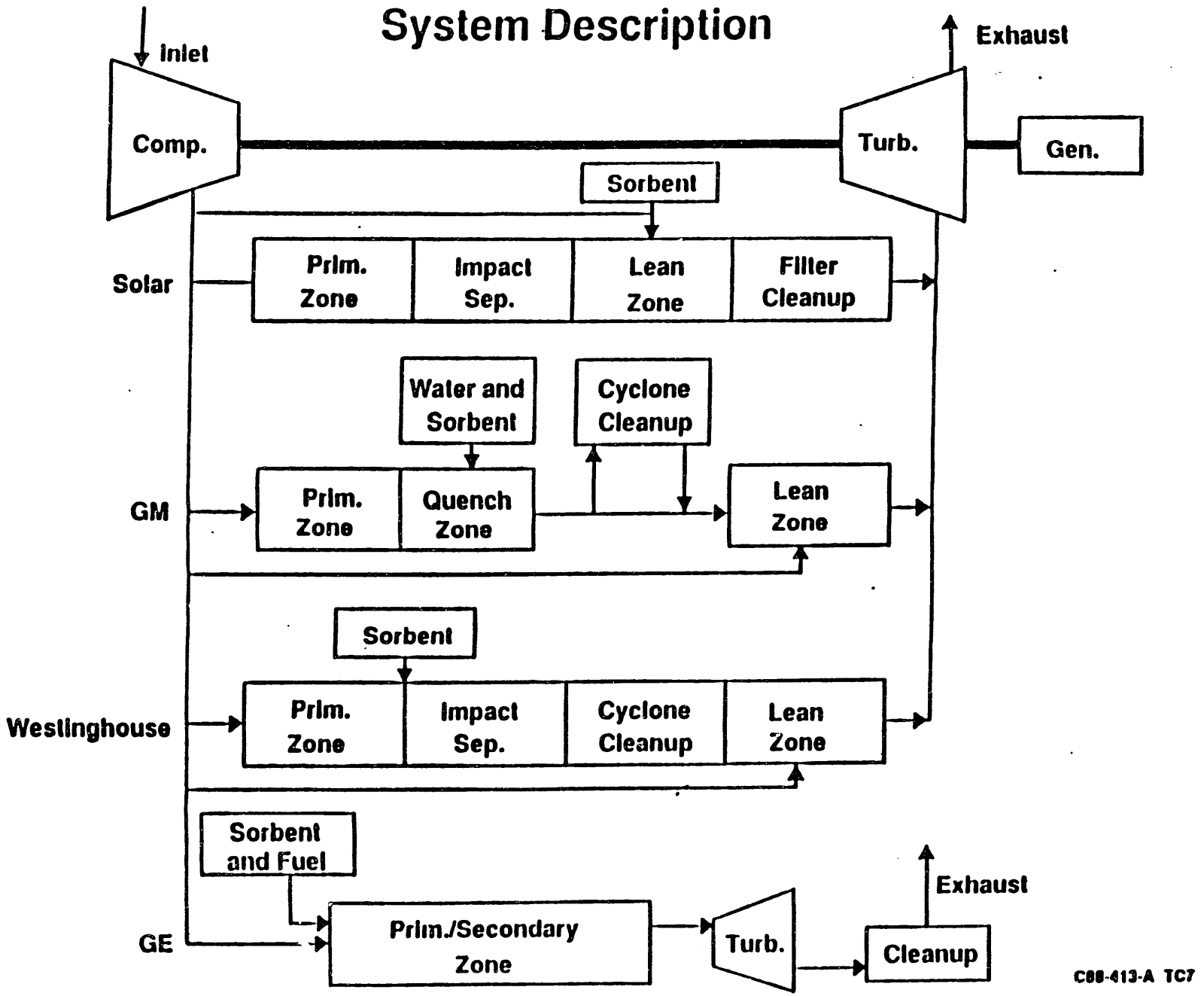

System Description
Inlet
Exhaust
Comp.
Turb.
Gen.
Sorbent
Solar
Prim. Zone
Impact Sep.
Lean Zone
Filter Cleanup
Water and Sorbent
Cyclone Cleanup
GM
Prim. Zone
Quench Zone
Lean Zone
Sorbent
Westinghouse
Prim. Zone
Impact Sep.
Cyclone Cleanup
Lean Zone
Sorbent and Fuel
GE
Prim./Secondary Zone
Turb.
Exhaust
Cleanup
C88-413-A TC7

Figure I.1

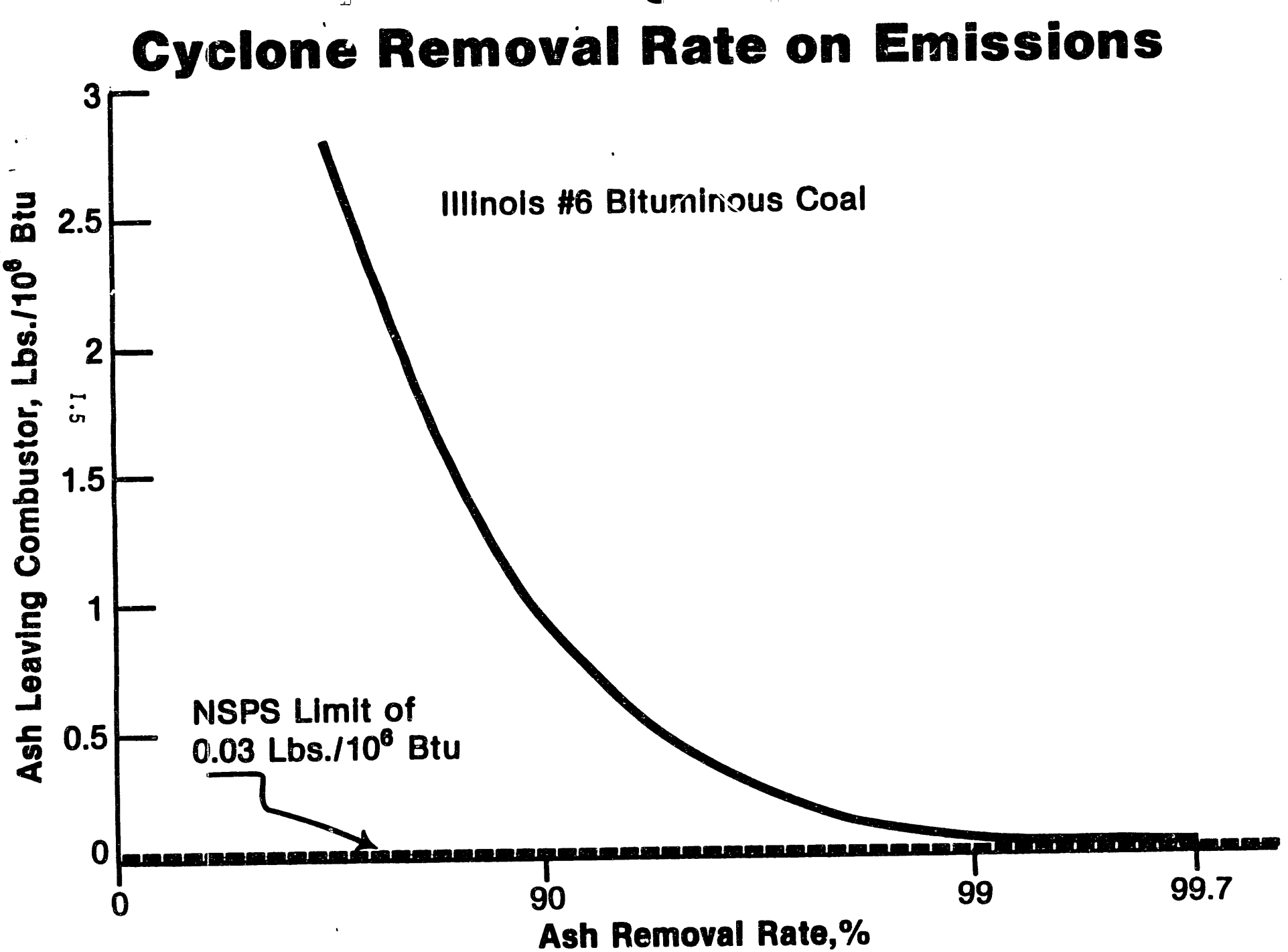

Cyclone Removal Rate on Emissions
Illinois #6 Bituminous Coal
NSPS Limit of
0.03 Lbs./10^6 Btu
Ash Leaving Combustor, Lbs./10^6 Btu
Ash Removal Rate,%
3
2.5
2
1.5
1
0.5
0
0
90
99
99.7

Figure I.2

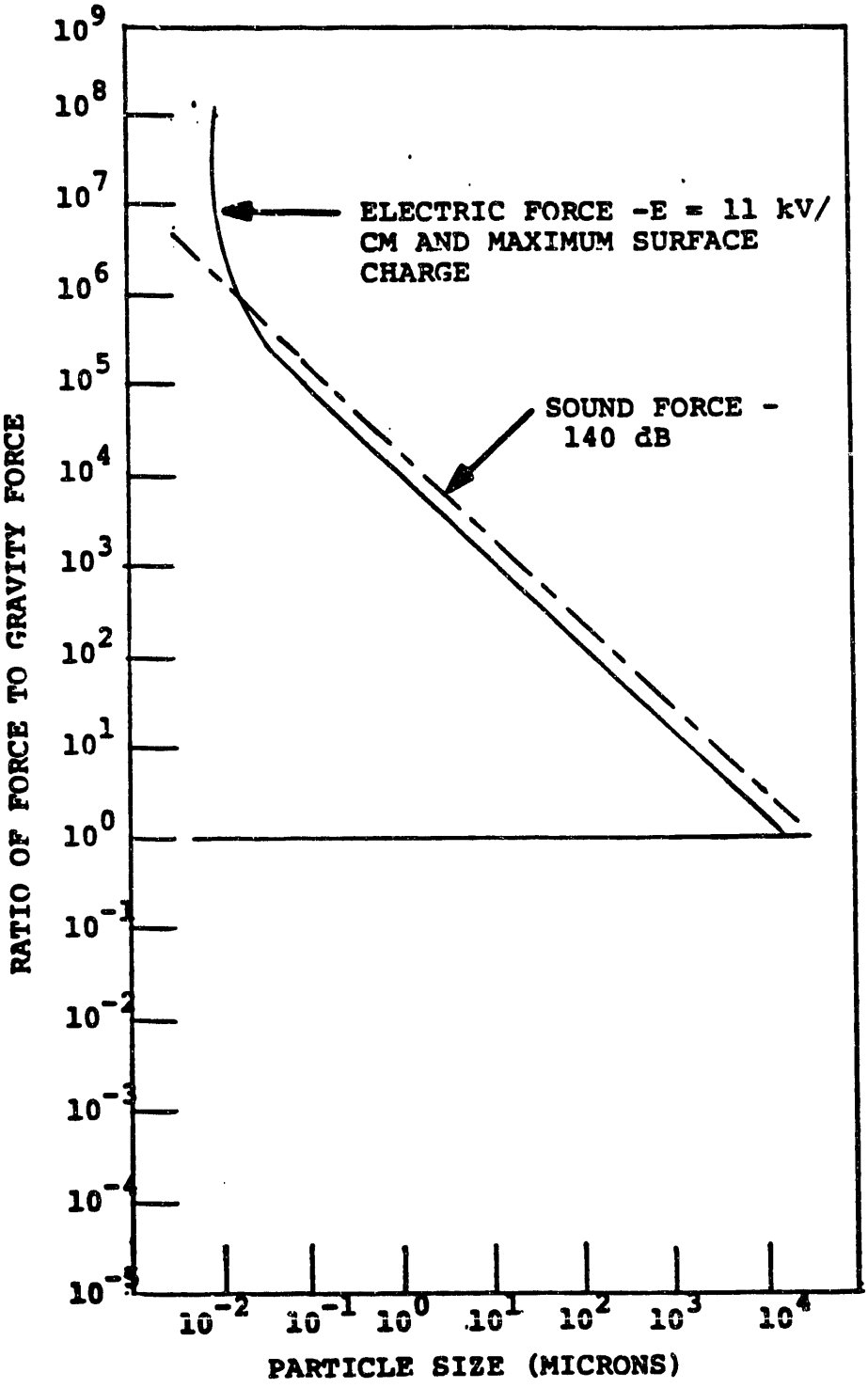


Figure II.1

ELECTRICAL AND SOUND FORCES THAT CAN BE EXERTED ON AEROSOL PARTICLES

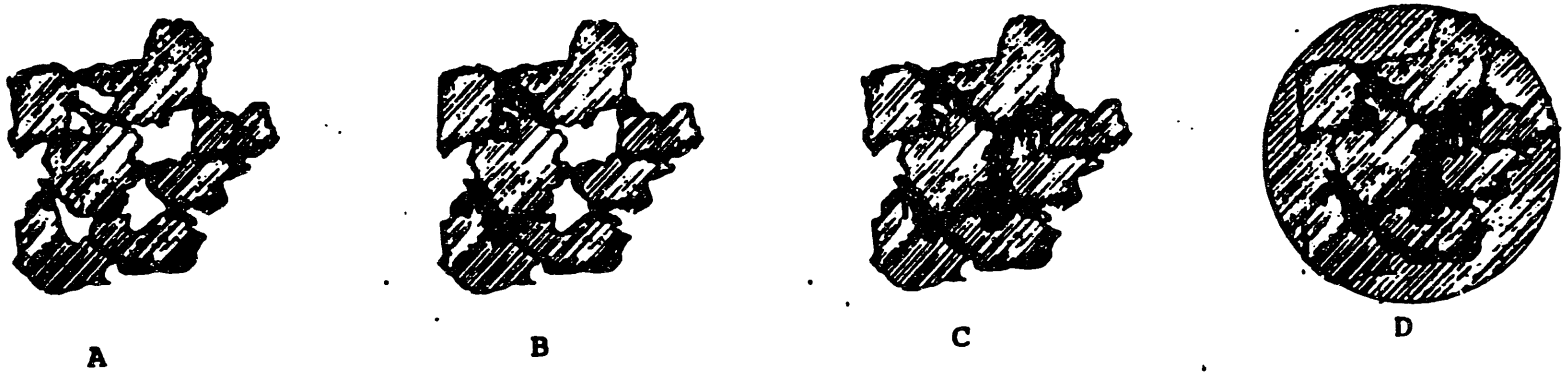


Figure II.2

LIQUID BRIDGE MODEL FOR CAPILLARY ADHESION

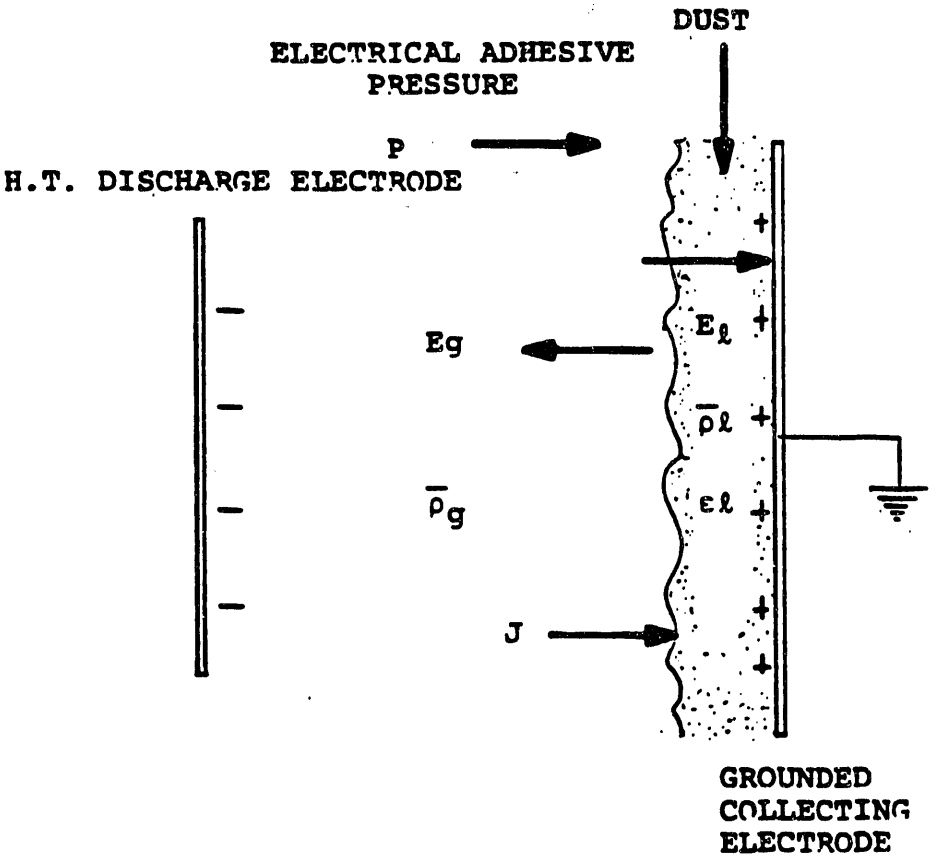


Figure II.3

ADHESIVE ELECTRICAL FORCES ON DUST LAYER SUBJECTED TO CURRENT FLOW

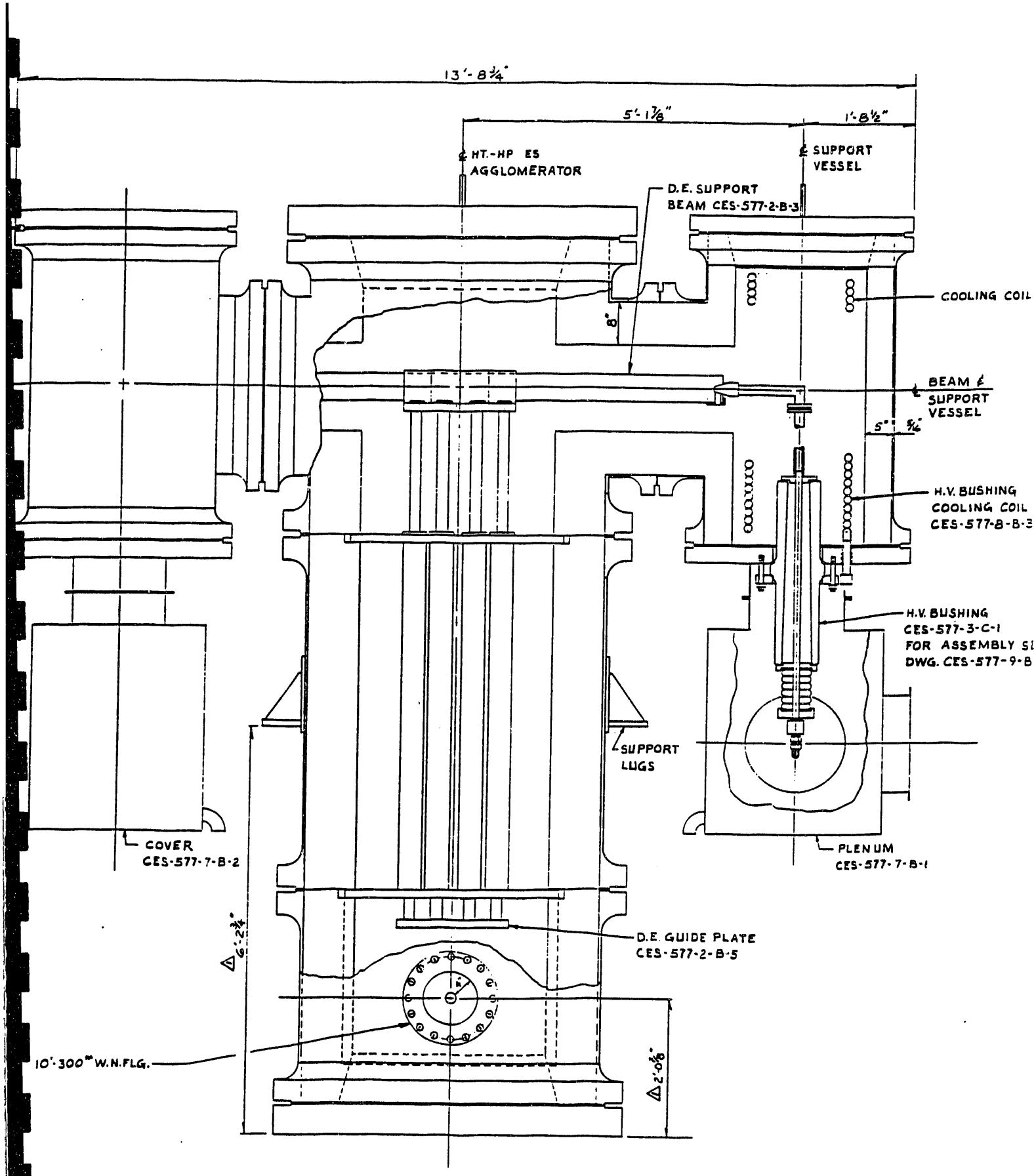


Figure II.4 Electrostatic Agglomerator Schematic

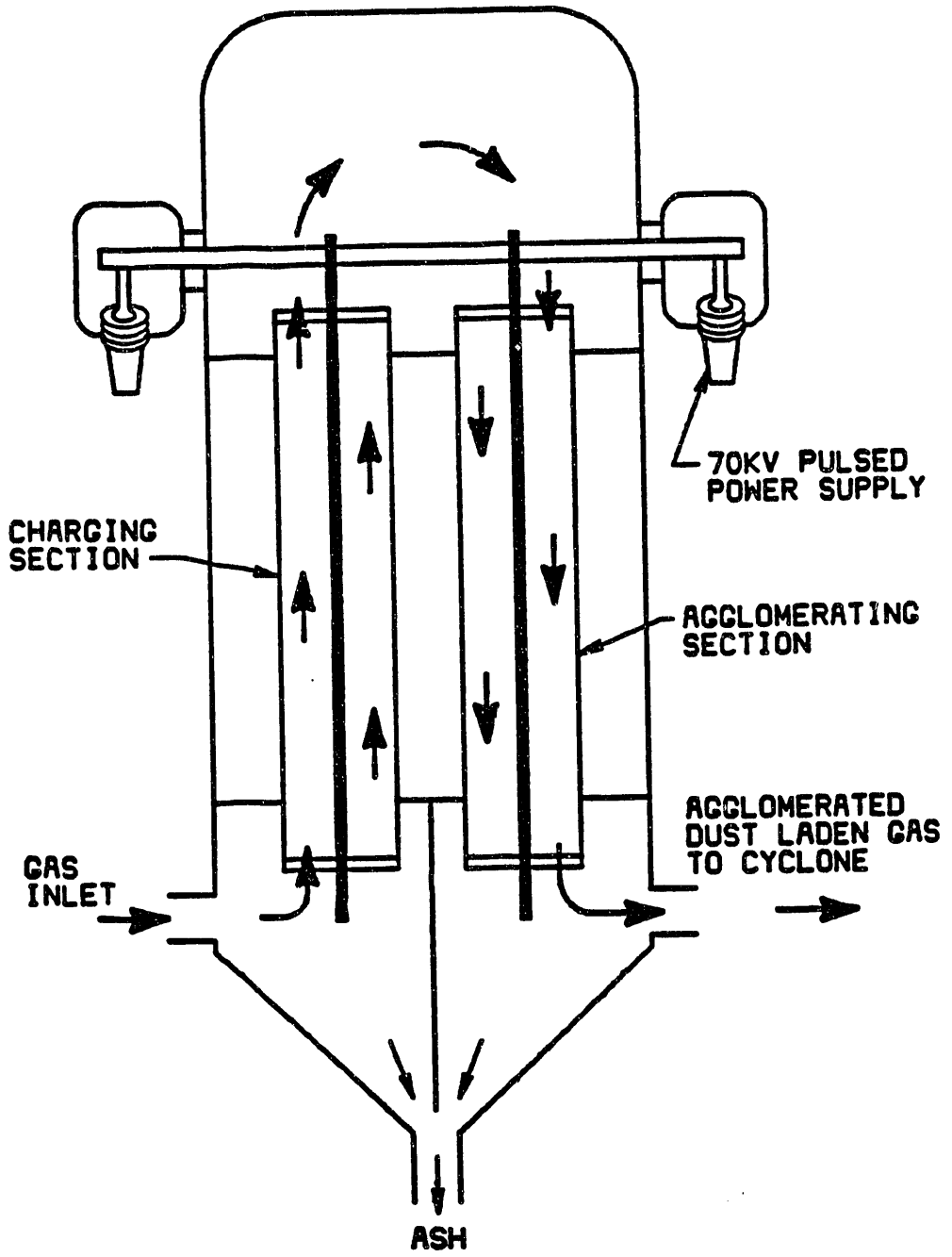
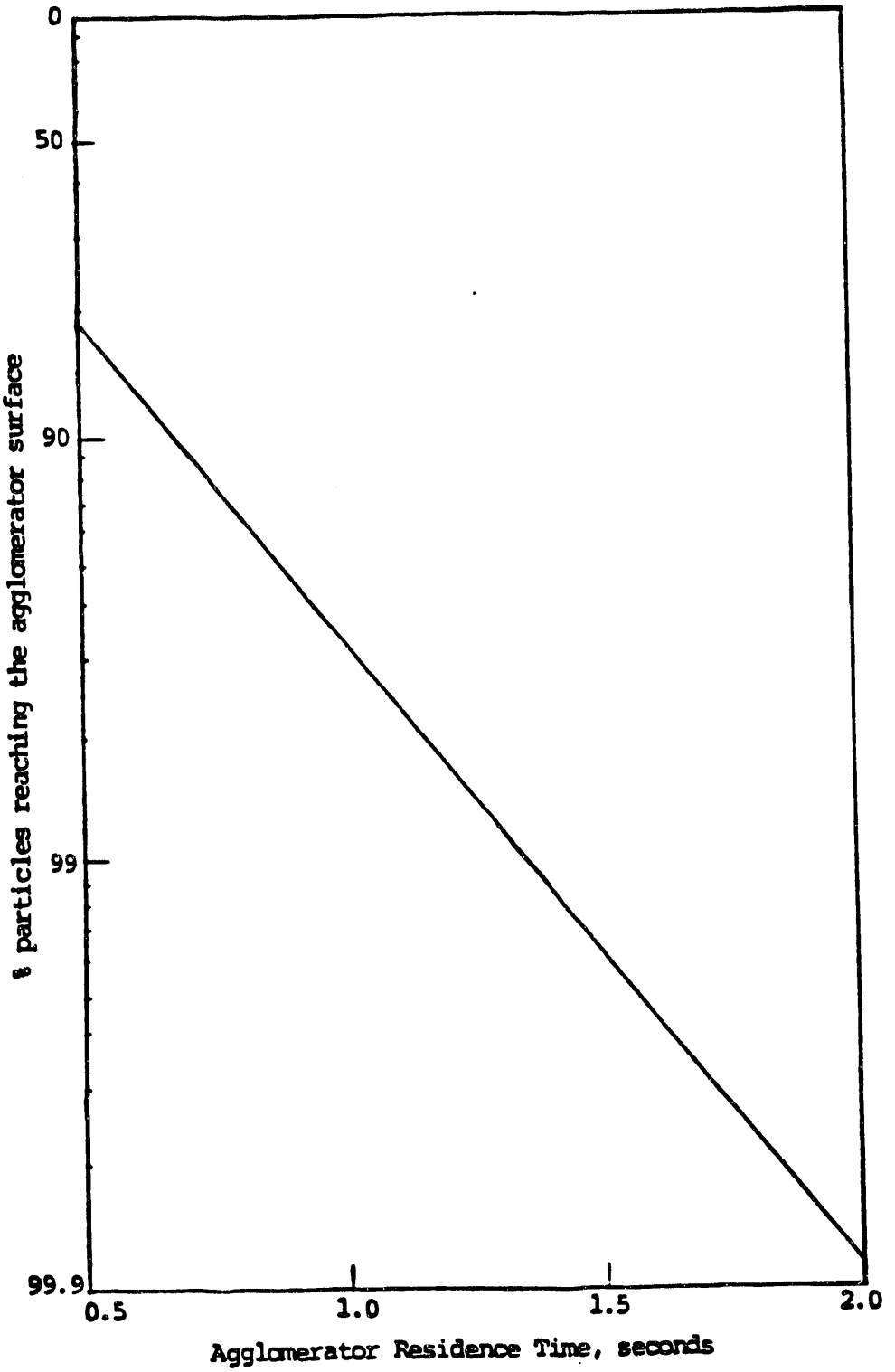


Figure II.5 Depiction of gas flow through one electrode of the electrostatic agglomerator



Extent of 0.06 micron particulate reaching agglomerator surface as a function of residence time.

Figure II.6

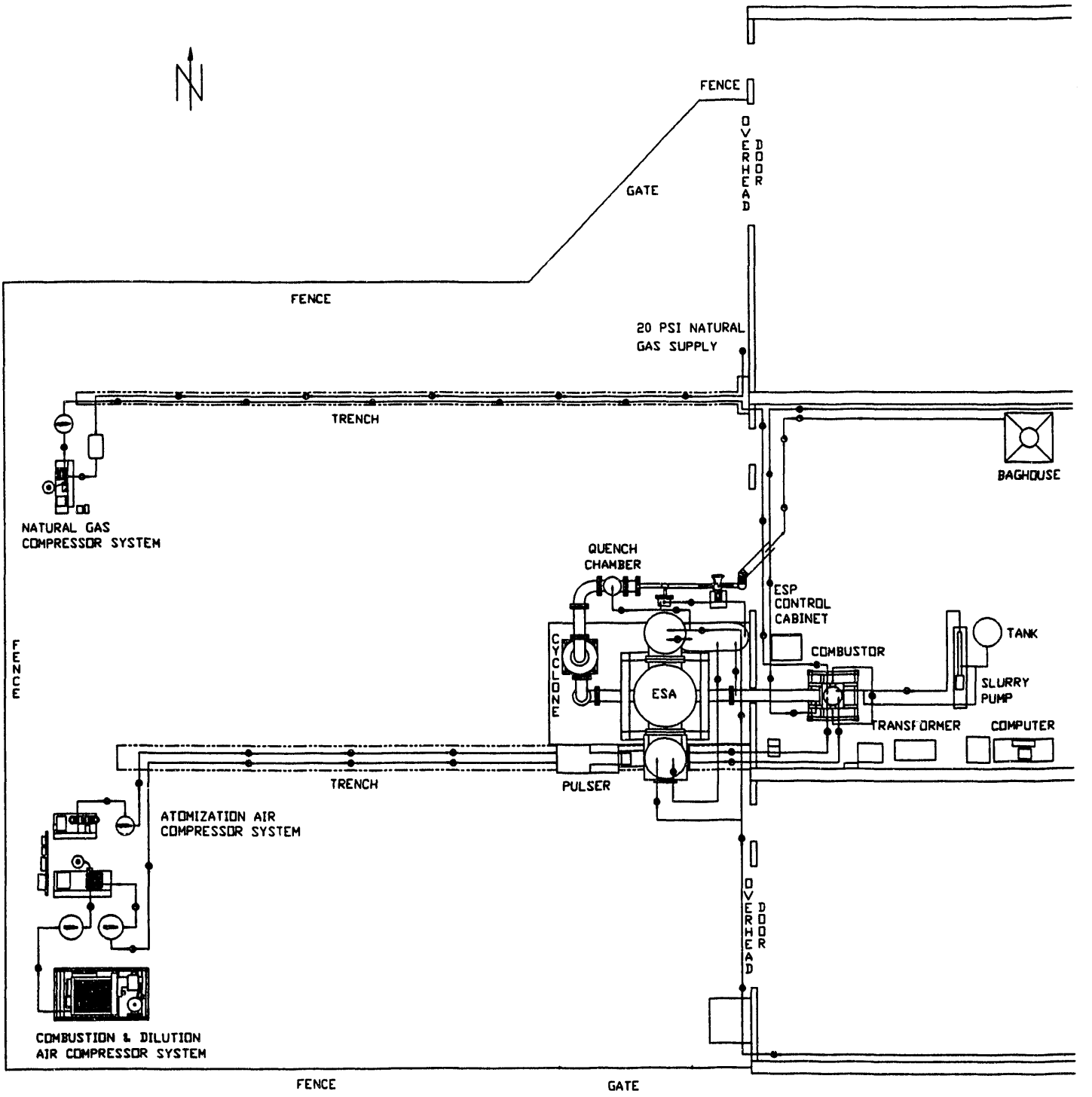


Figure III.1 HTHP Combustion Facility Overall Layout

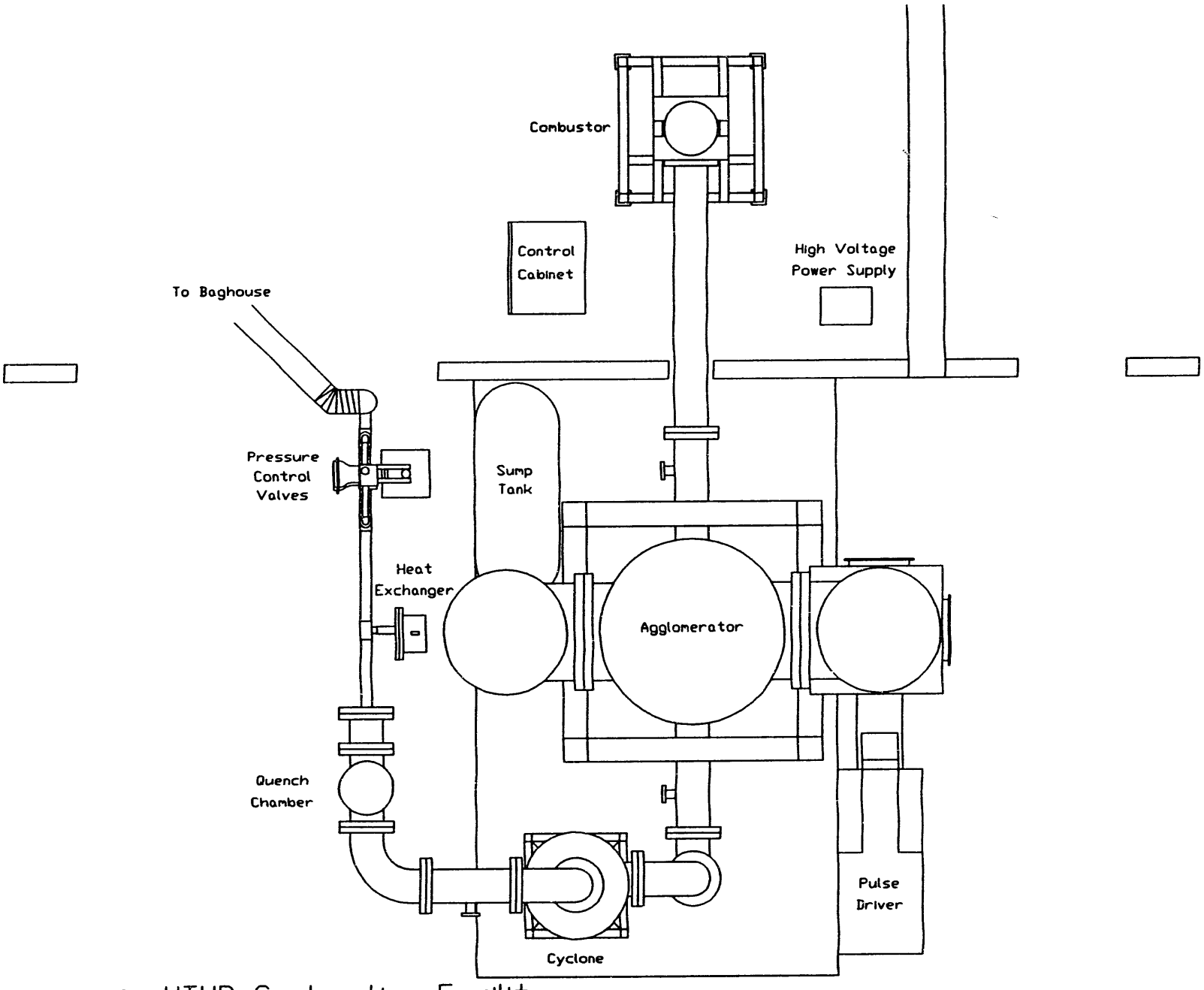


Figure III.2 HTHP Combustion Facility

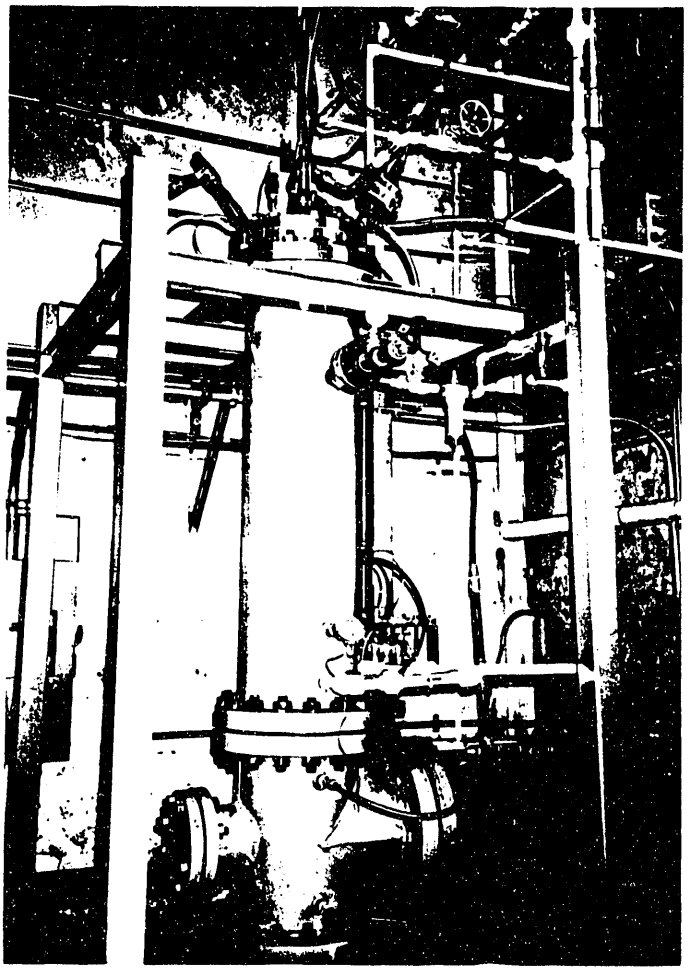


Figure III.3 Photograph of HTHP Combustor

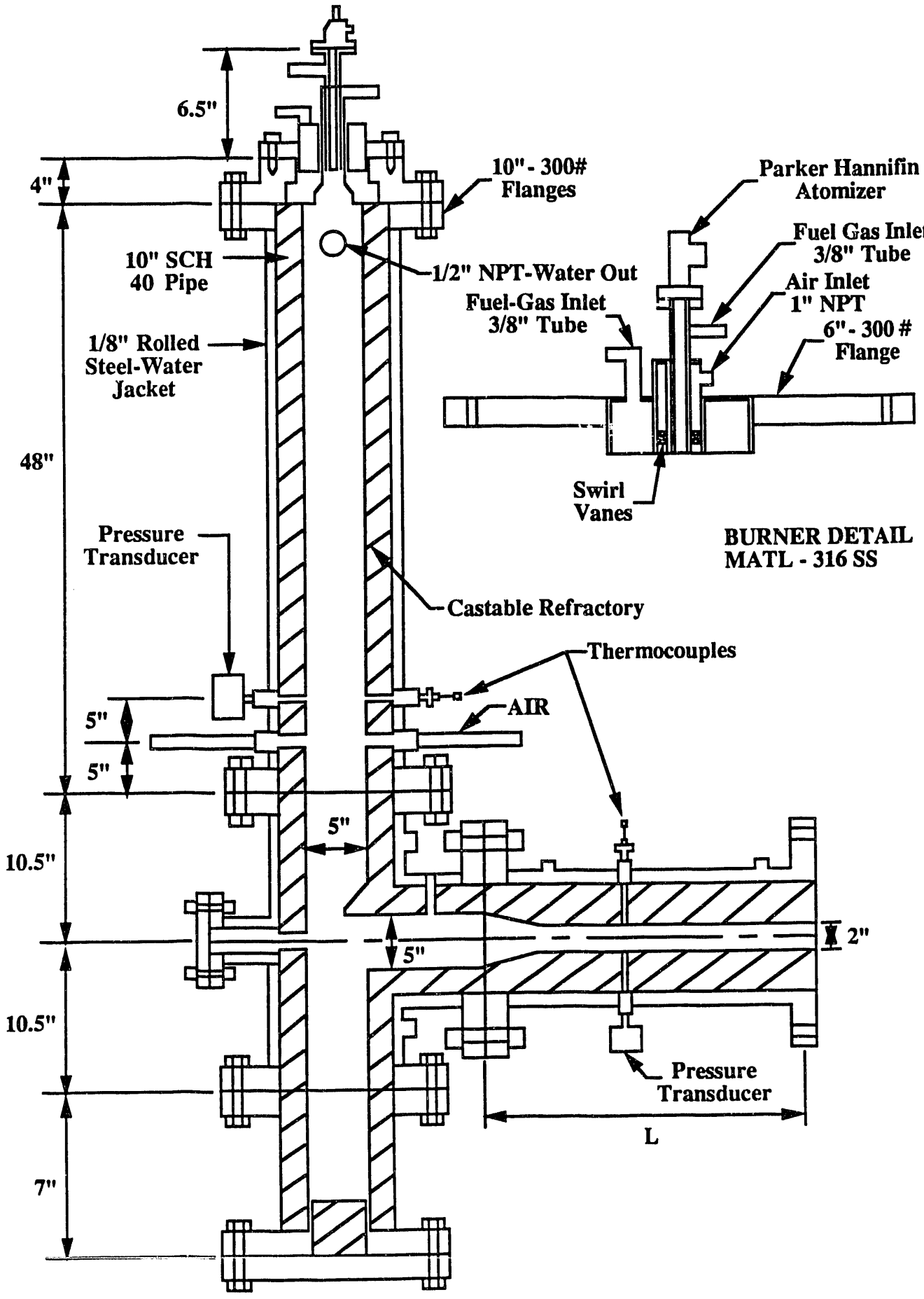


Figure III.4 **DOE - HTHP Combustor Matl - Carbon Steel**

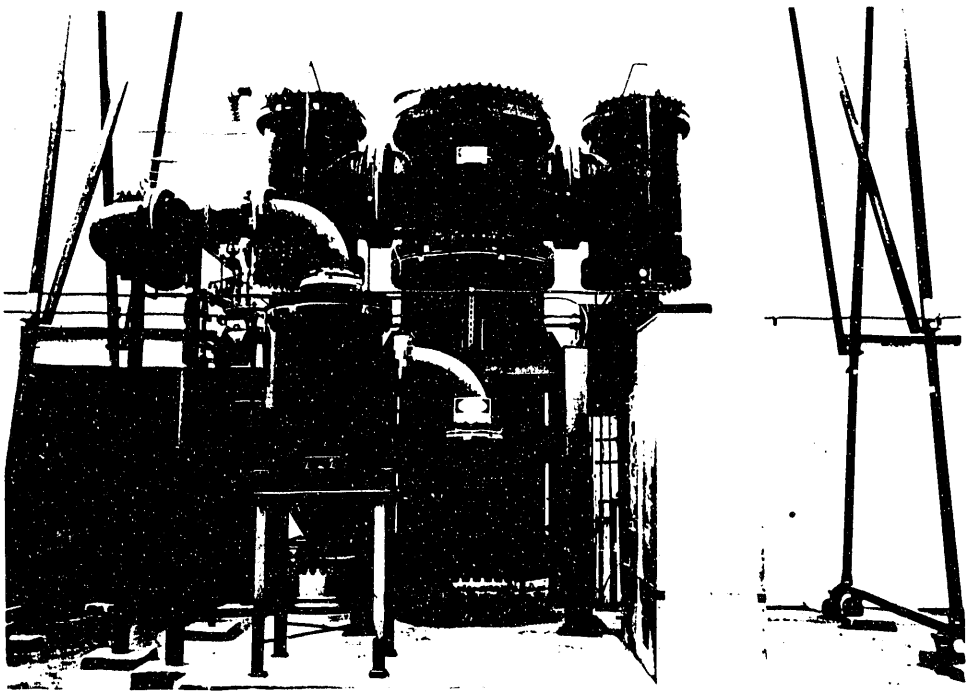


Figure III.5 Photograph of Electrostatic Agglomerator

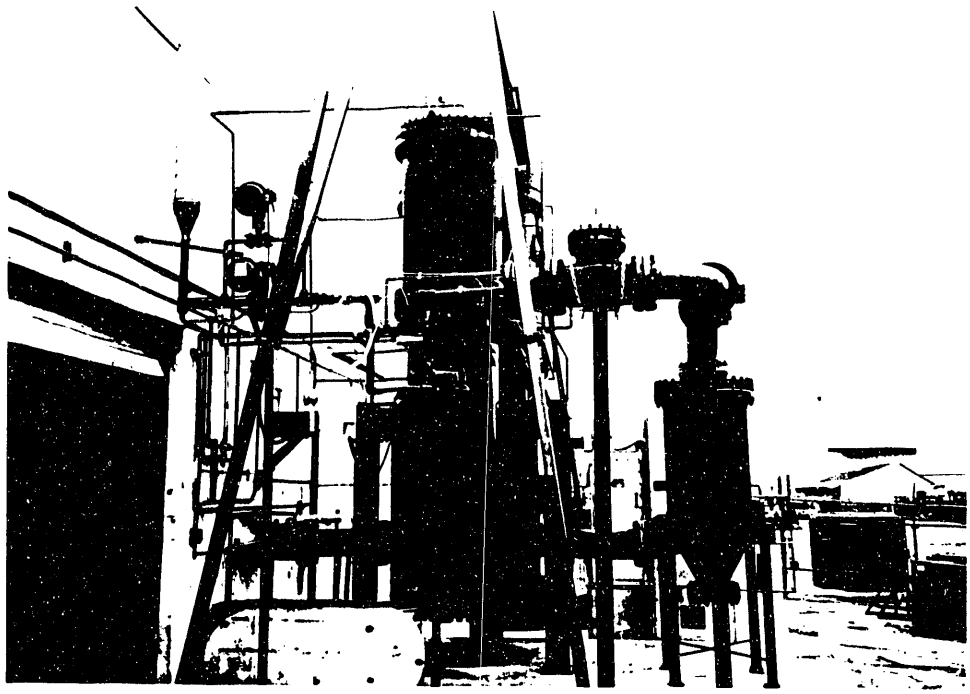
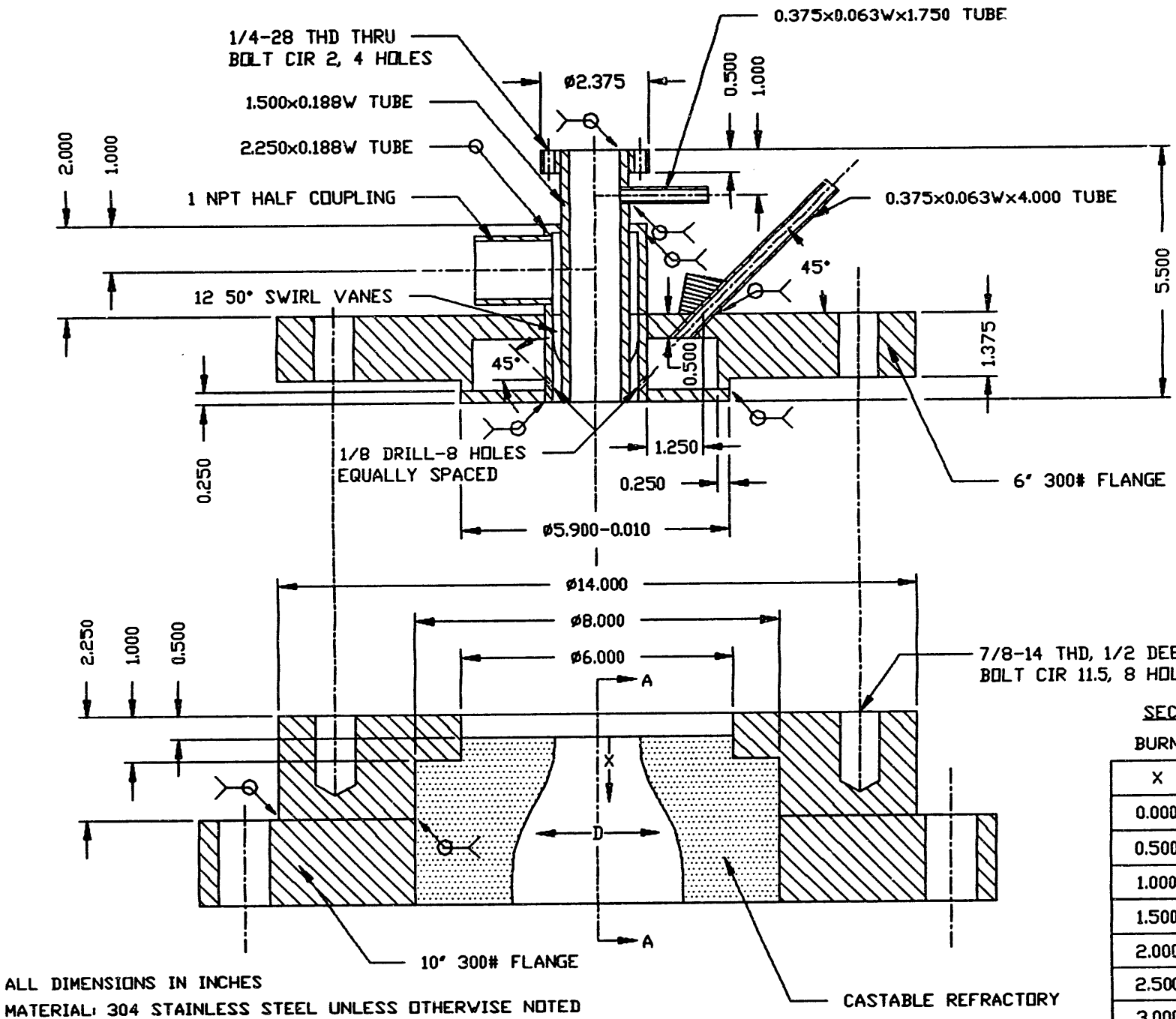


Figure III.6 Photograph of Cyclone and Electrostatic Agglomerator



ALL DIMENSIONS IN INCHES

MATERIAL: 304 STAINLESS STEEL UNLESS OTHERWISE NOTED

SECTION A-A

BURNER QUARL

X	D
0.000	1.875
0.500	1.940
1.000	2.270
1.500	2.810
2.000	3.360
2.500	3.680
3.000	3.750

Figure III.7 HTHP Burner

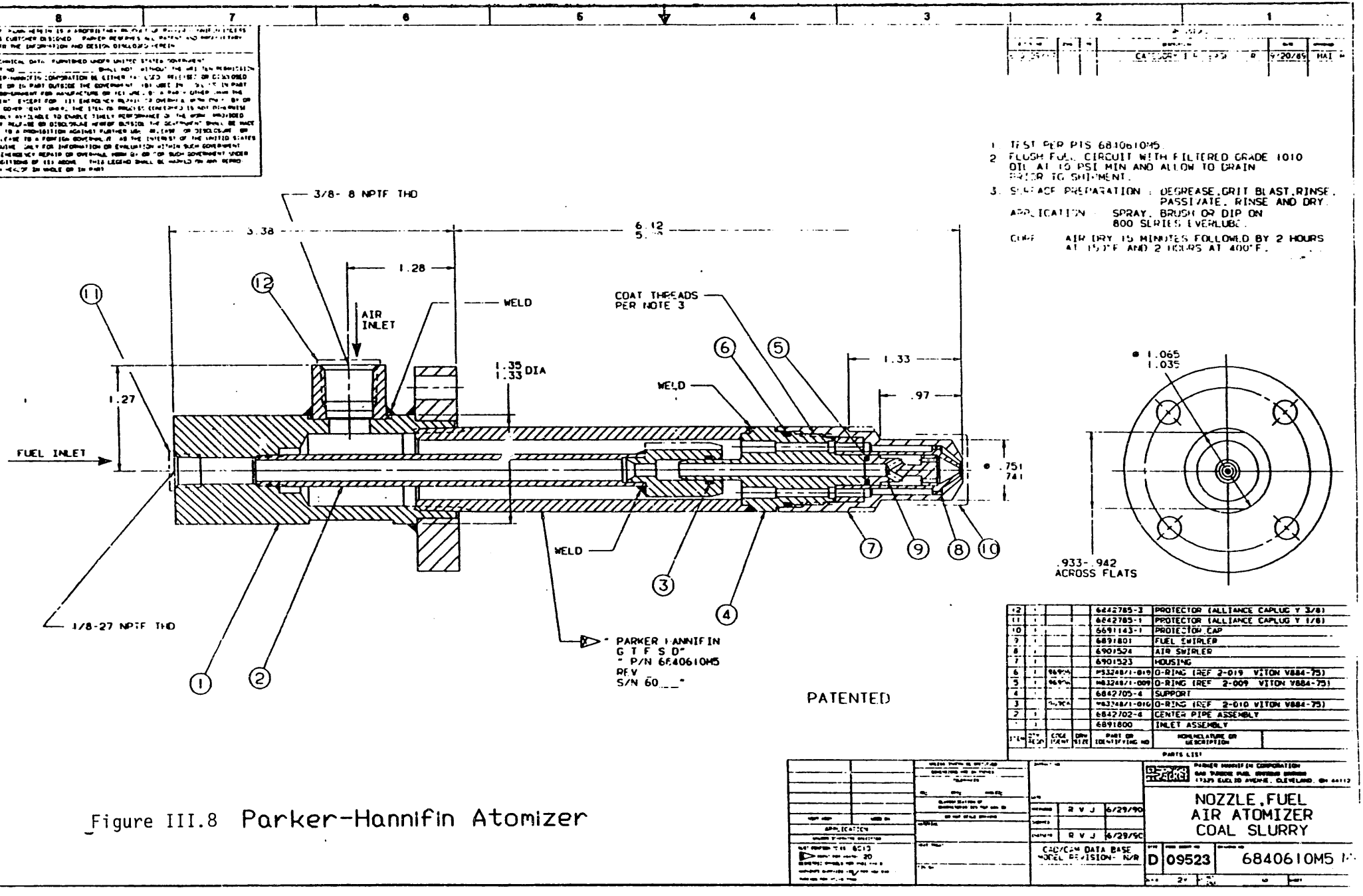
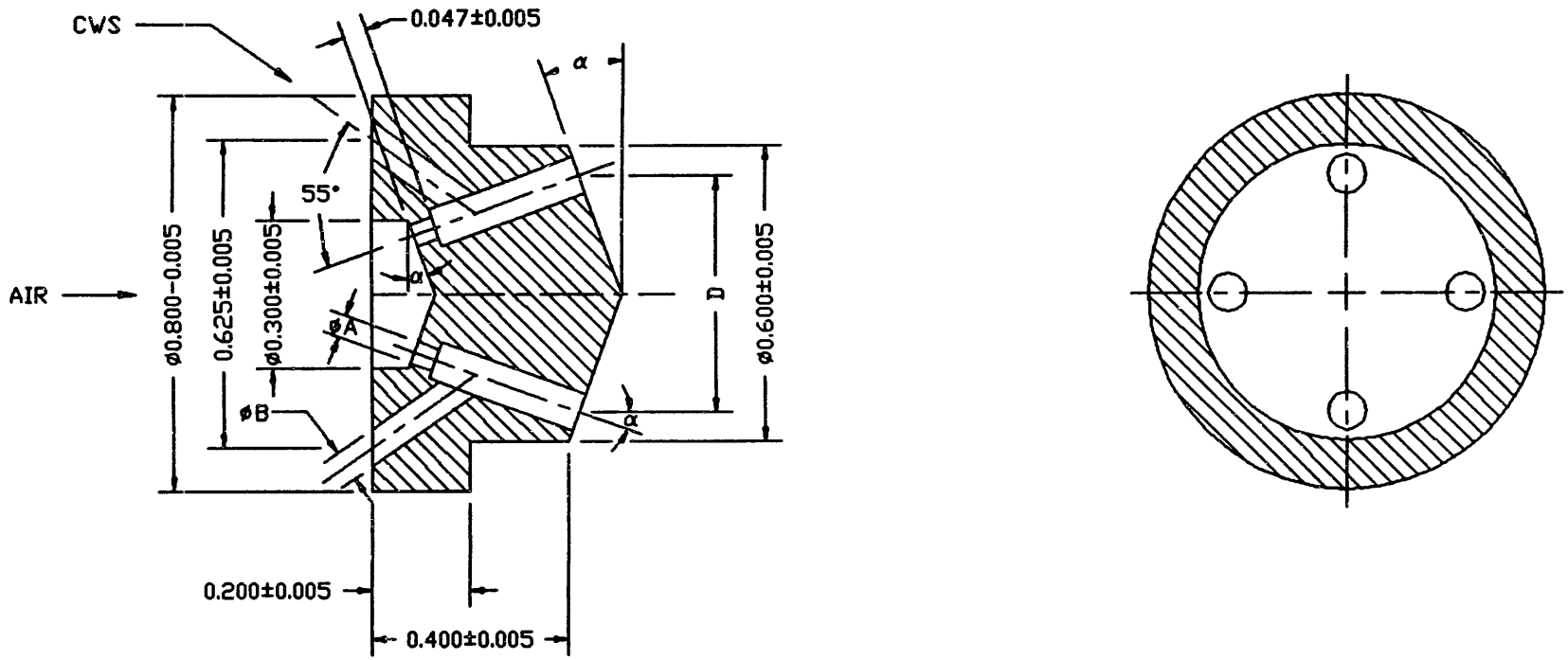


Figure III.8 Parker-Hannifin Atomizer

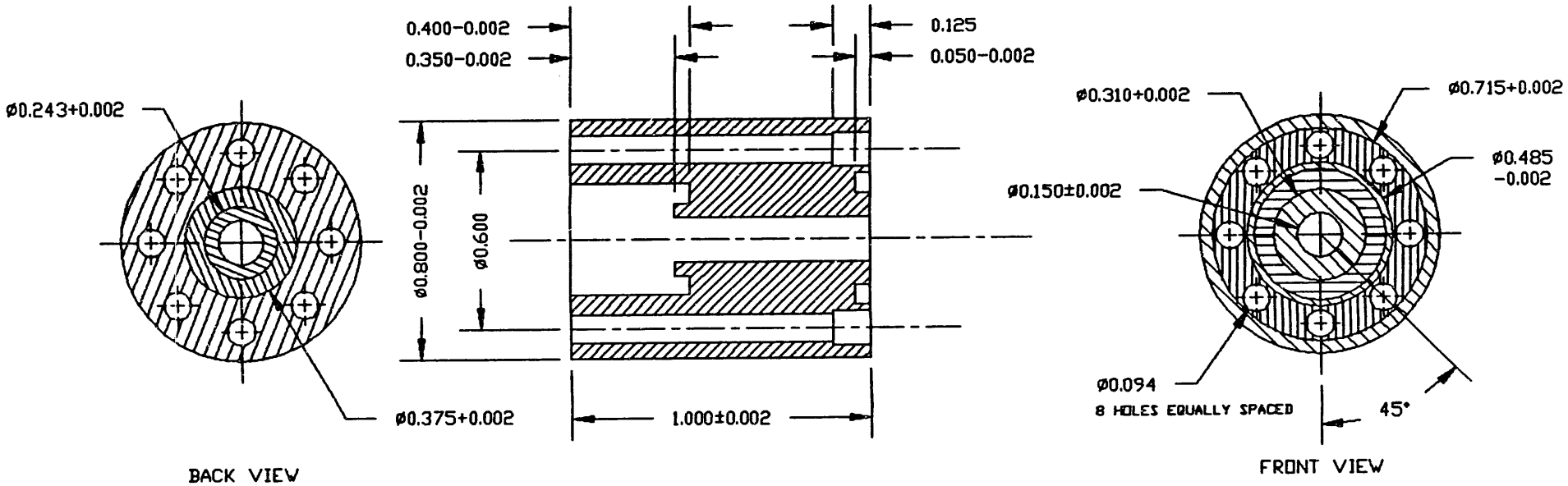


α	øA	øB	øC	D	LABEL
15°	0.047	0.063	0.078	0.406±0.005	YJ15°
20°	0.047	0.063	0.078	0.480±0.005	YJ20°

ALL DIMENSIONS IN INCHES

MATERIAL: 316 STAINLESS STEEL

Figure III.9 Y-Jet Atomizers



ALL DIMENSIONS IN INCHES

MATERIAL: 316 STAINLESS STEEL

Figure III.10 P-H Nozzle Extension

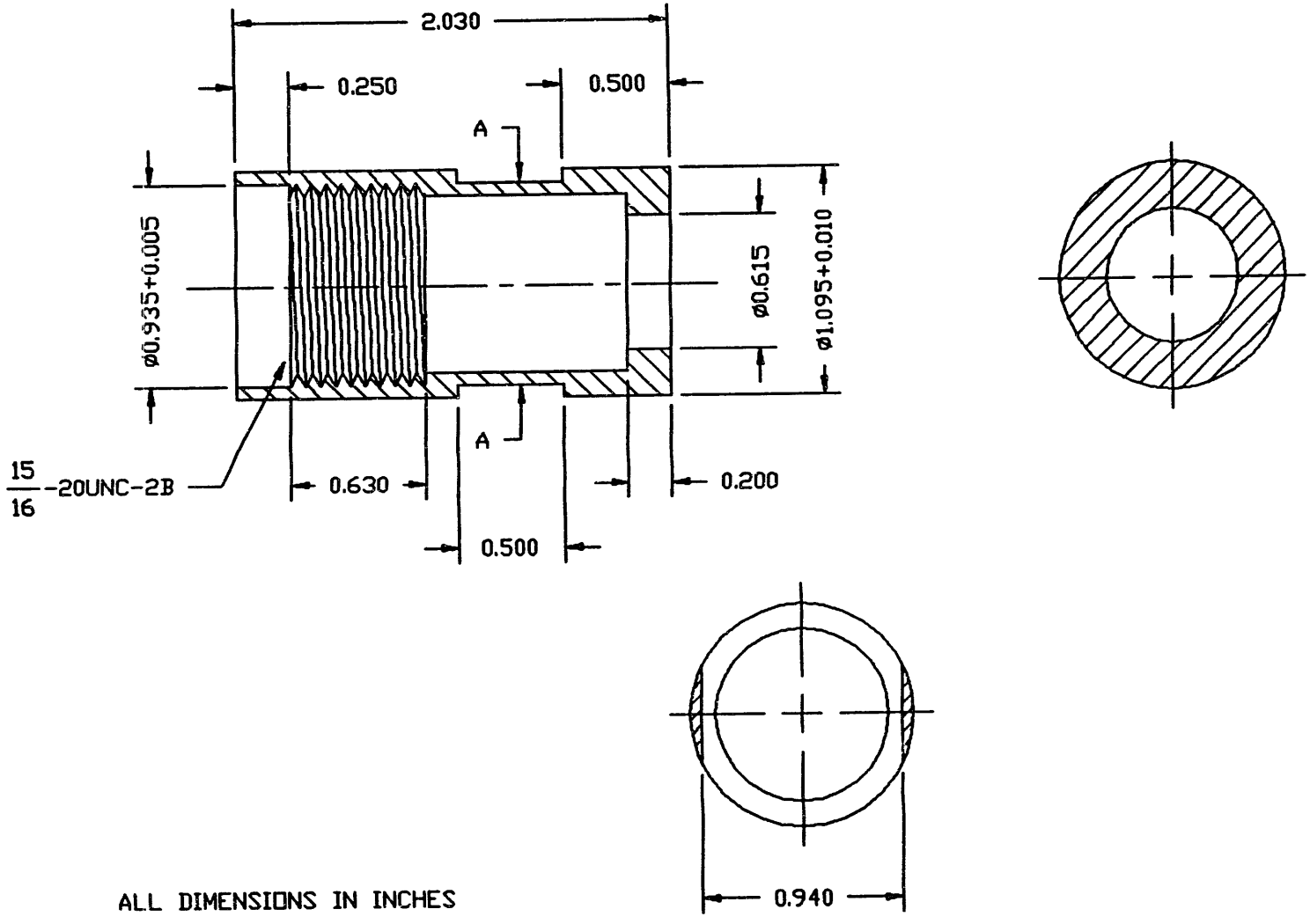
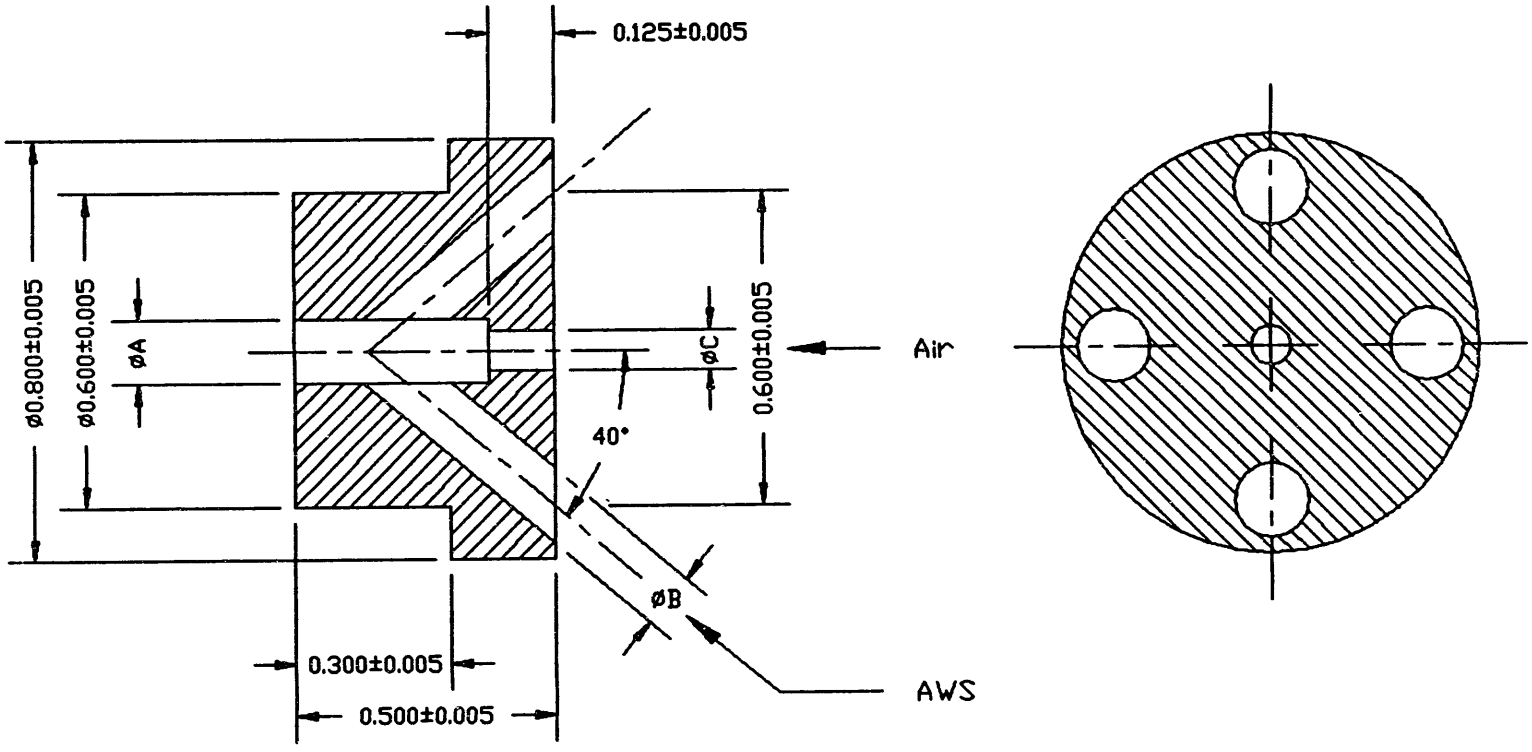


Figure III.11 P-H Nozzle Cap



LABEL	øA	øB	øC
SY125/109/78	0.125	0.109	0.078
SY82/73/52	0.082	0.073	0.052

ALL DIMENSIONS IN INCHES

MATERIAL: 316 STAINLESS STEEL

Figure III.12 Single Hole Y-Jet Atomizers

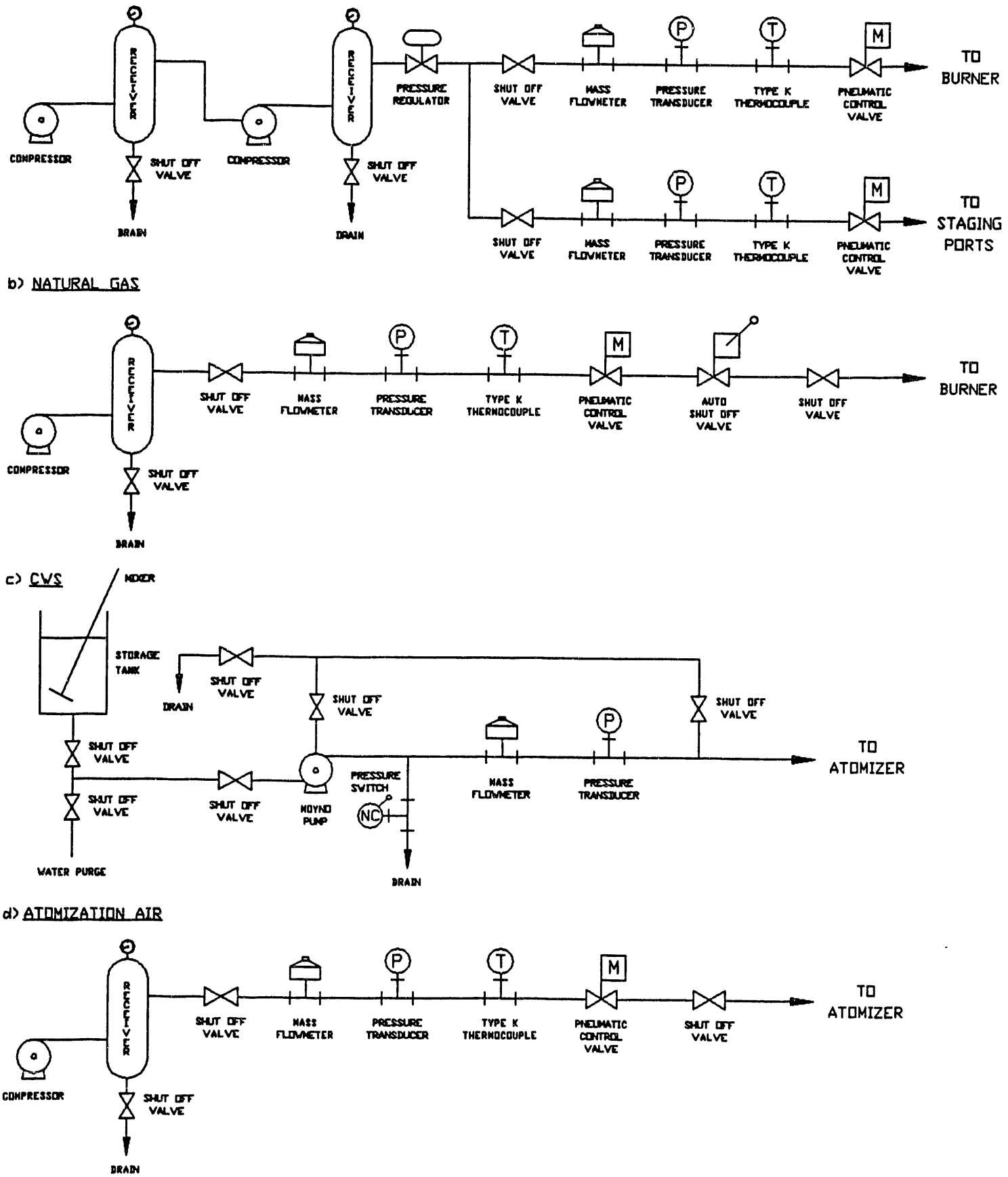


Figure III.13 Flow Schematics of HTHP Combustion Facility

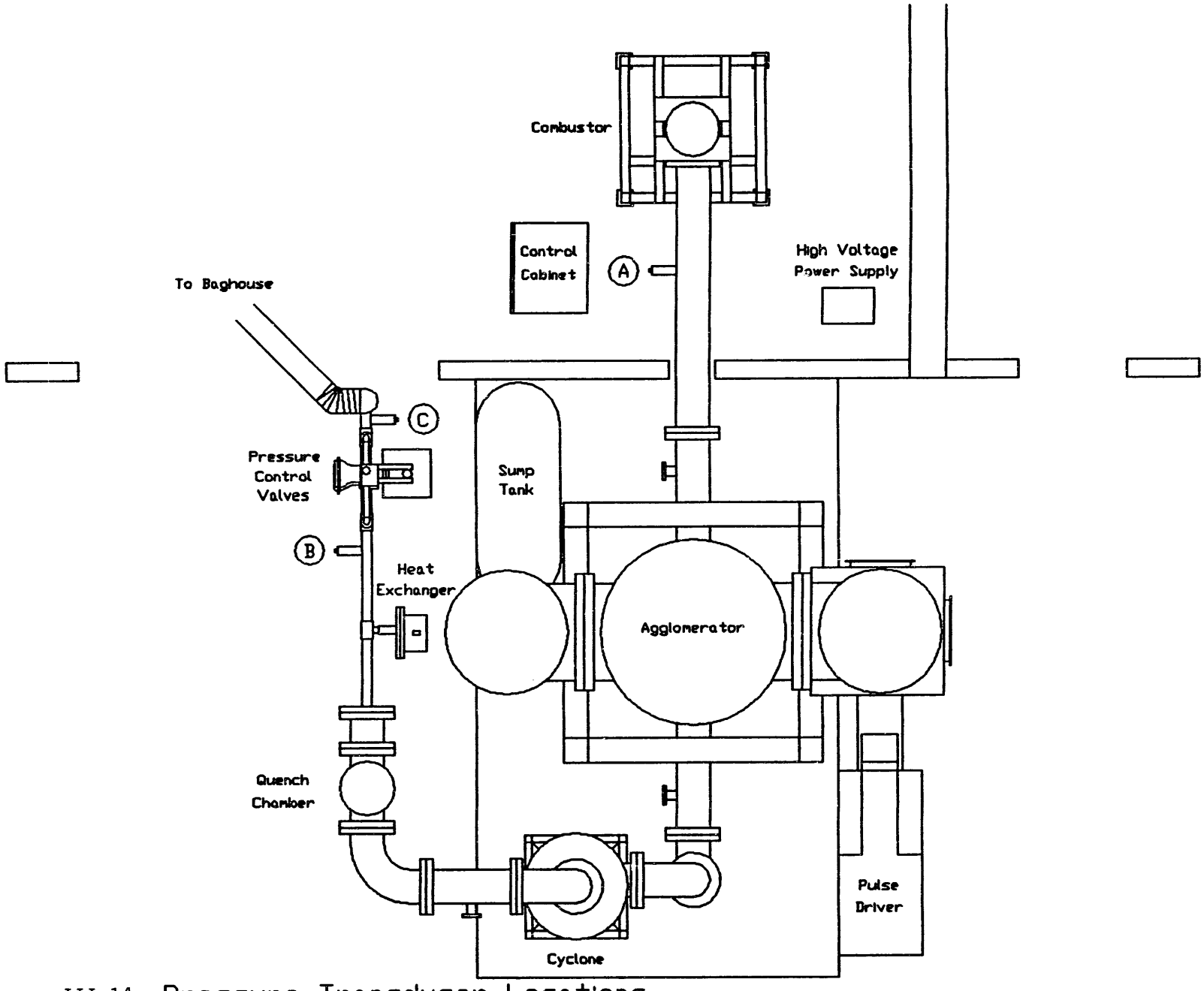


Figure III.14 Pressure Transducer Locations

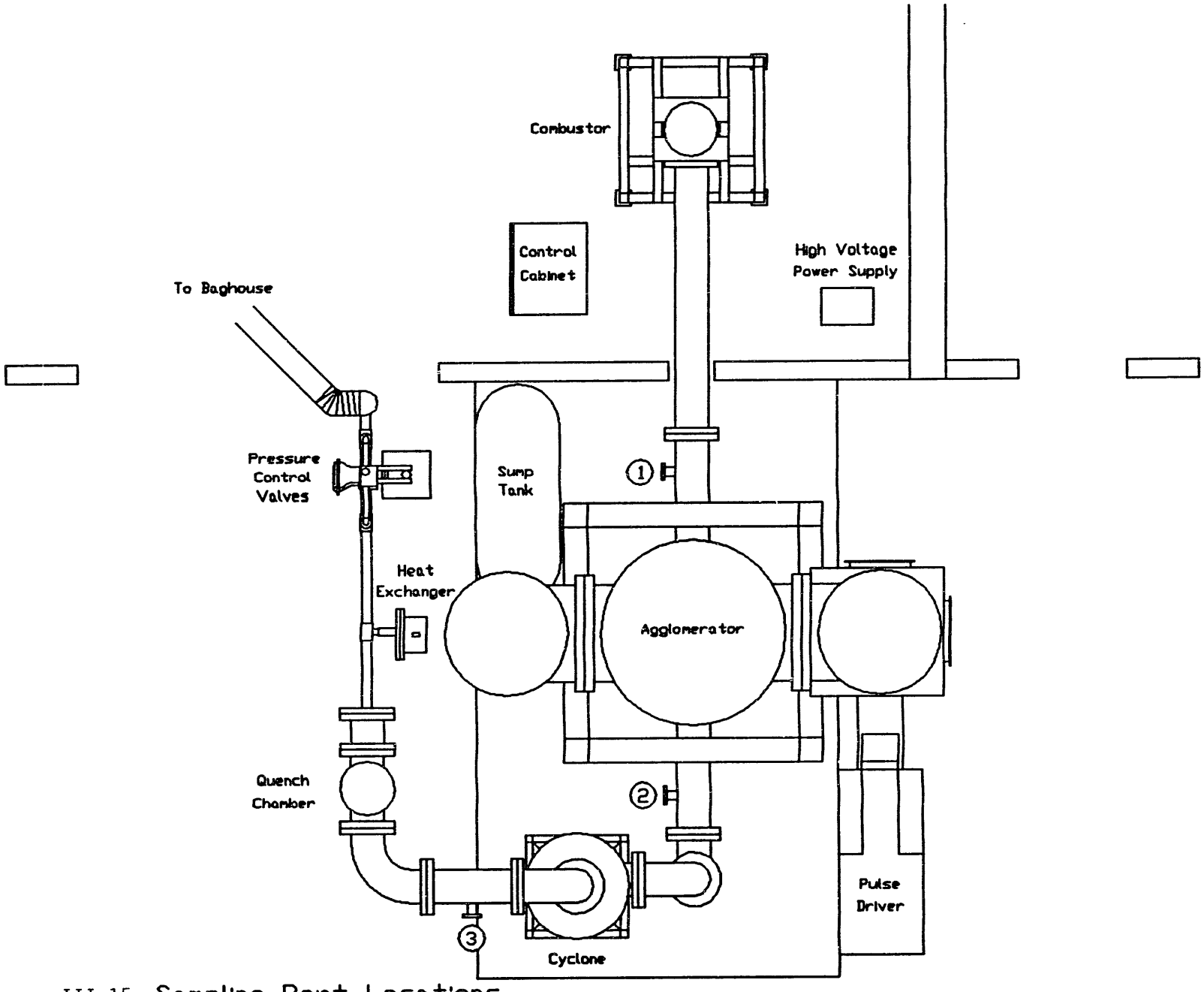


Figure III.15 Sampling Port Locations

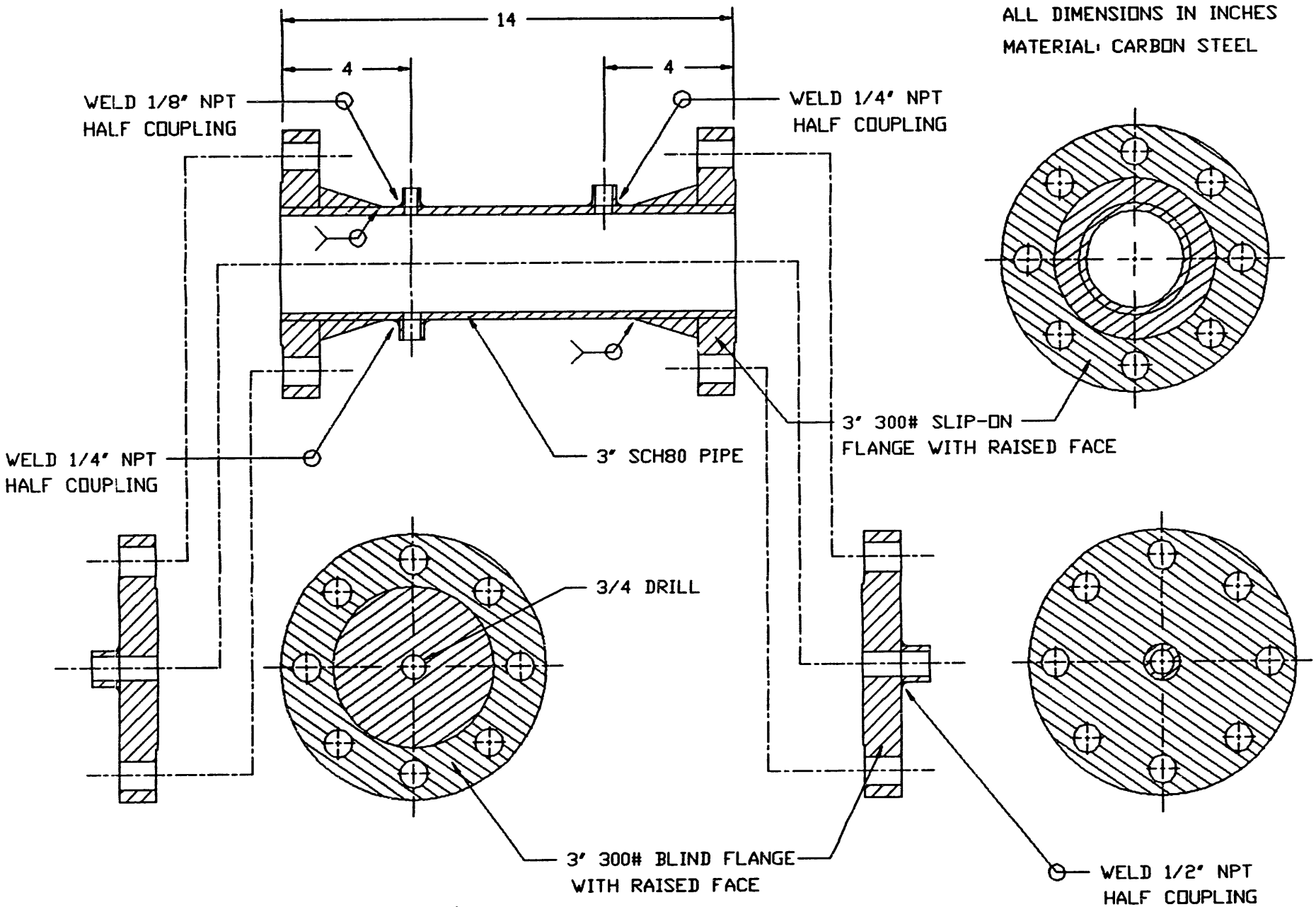
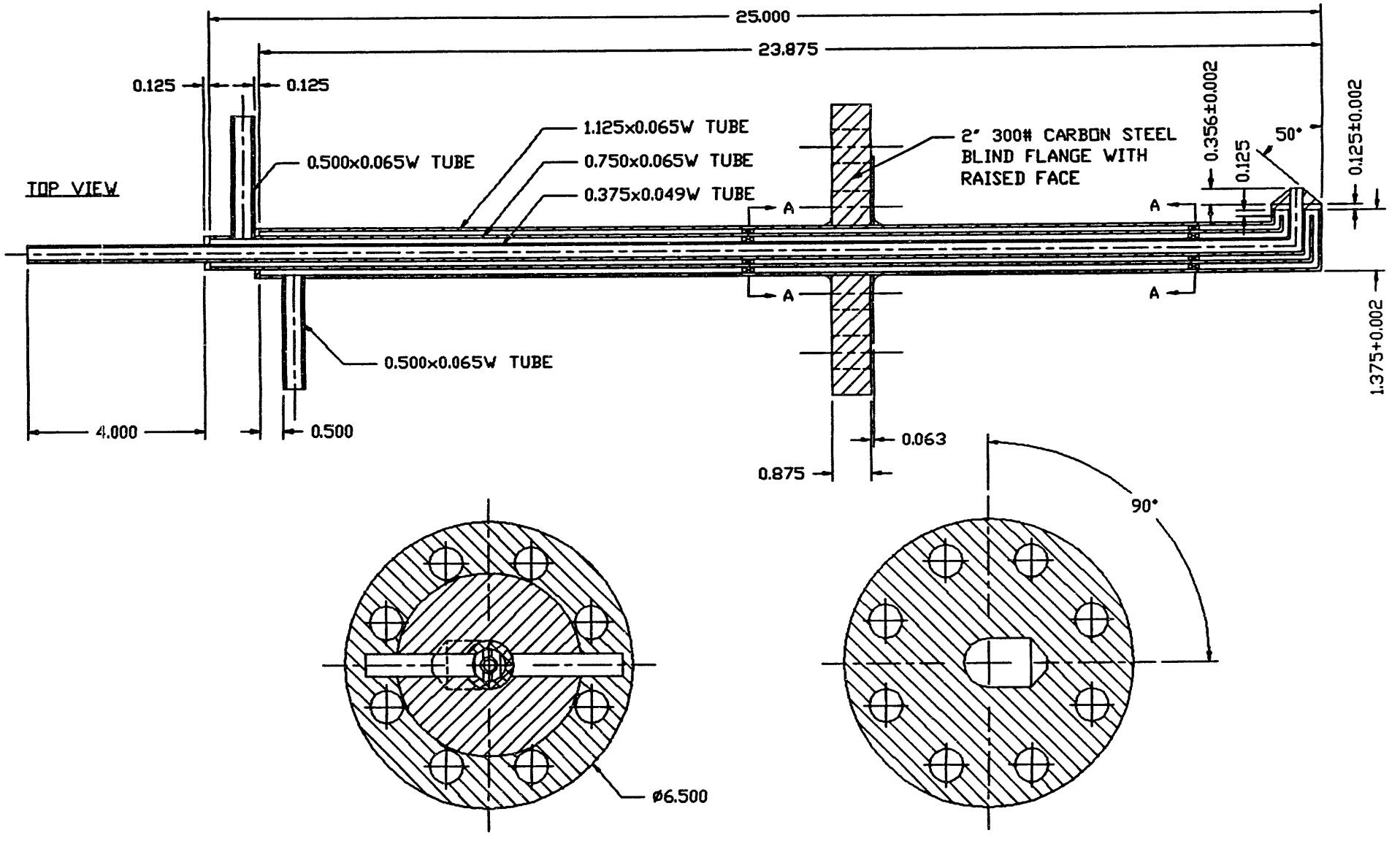


Figure III.16 Pressure Vessel



ALL DIMENSIONS IN INCHES

MATERIAL: 316 STAINLESS STEEL

Figure III.17 Water Cooled Sample Probe

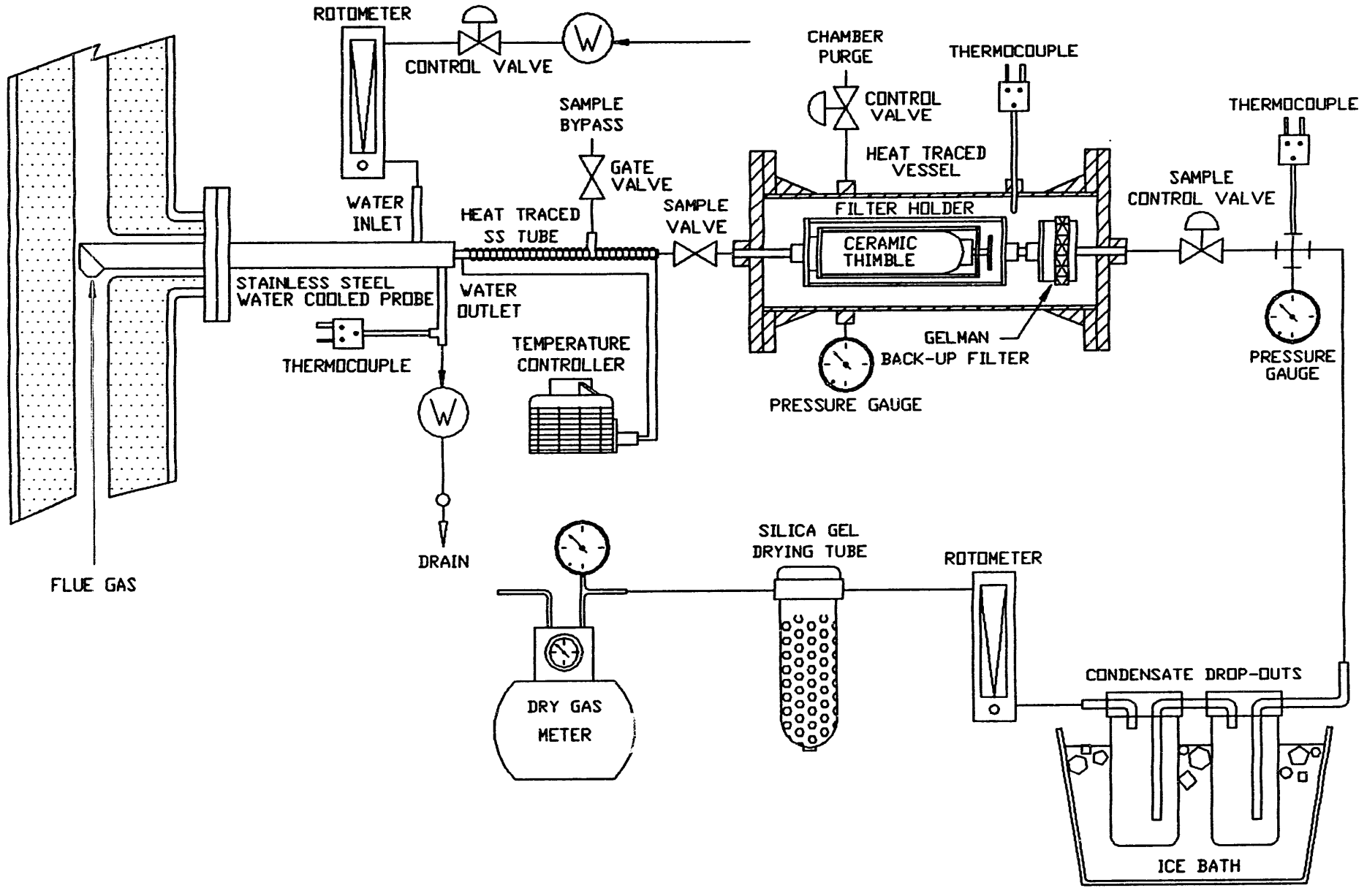
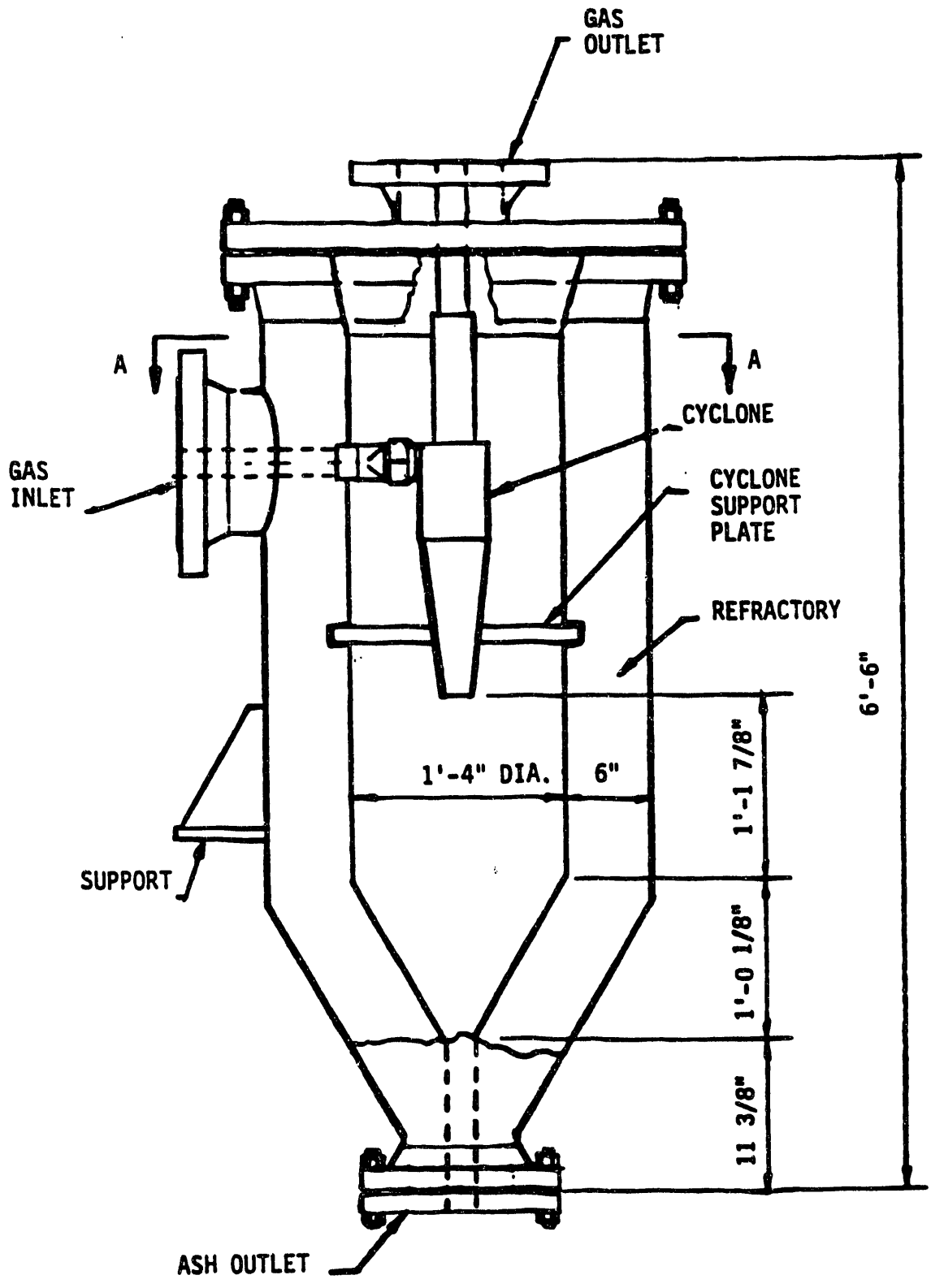


Figure III.18 Solid Sampling System



STAIRMAND CYCLONE

Figure III.19

Circuit Diagram
Pulse Energization System

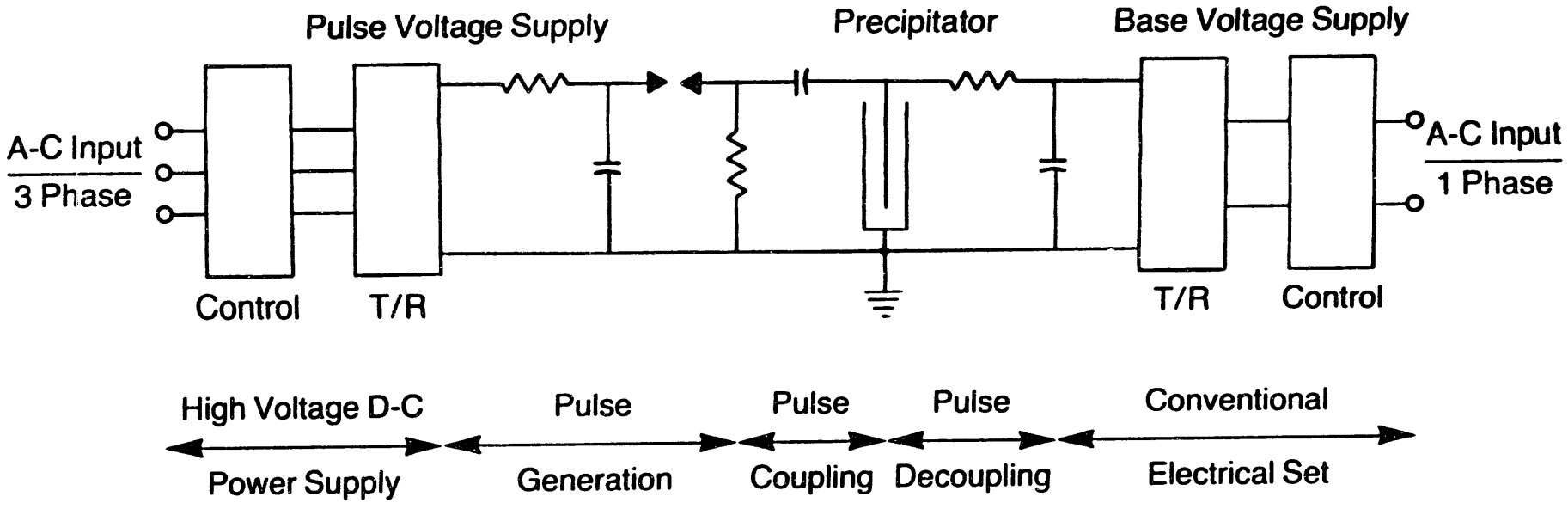
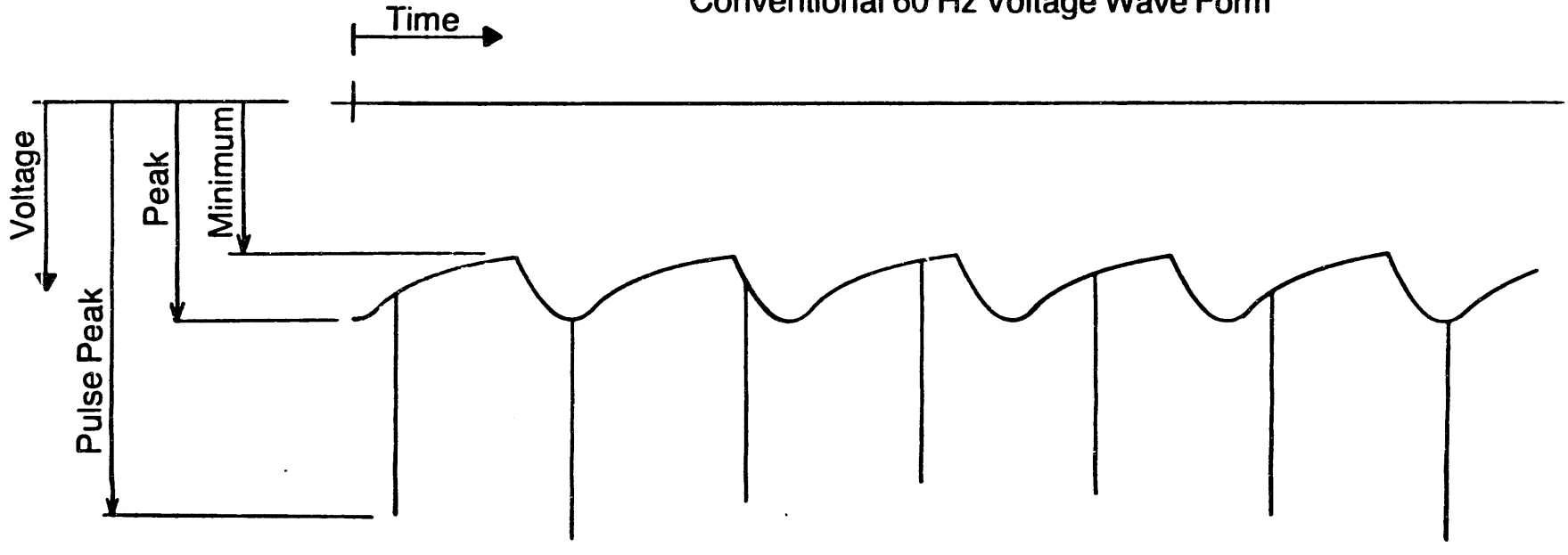


Figure III.20

Precipitator Voltage Wave Forms

Negative Polarity

Conventional 60 Hz Voltage Wave Form



Pulse Energization Wave Form

Figure III.21

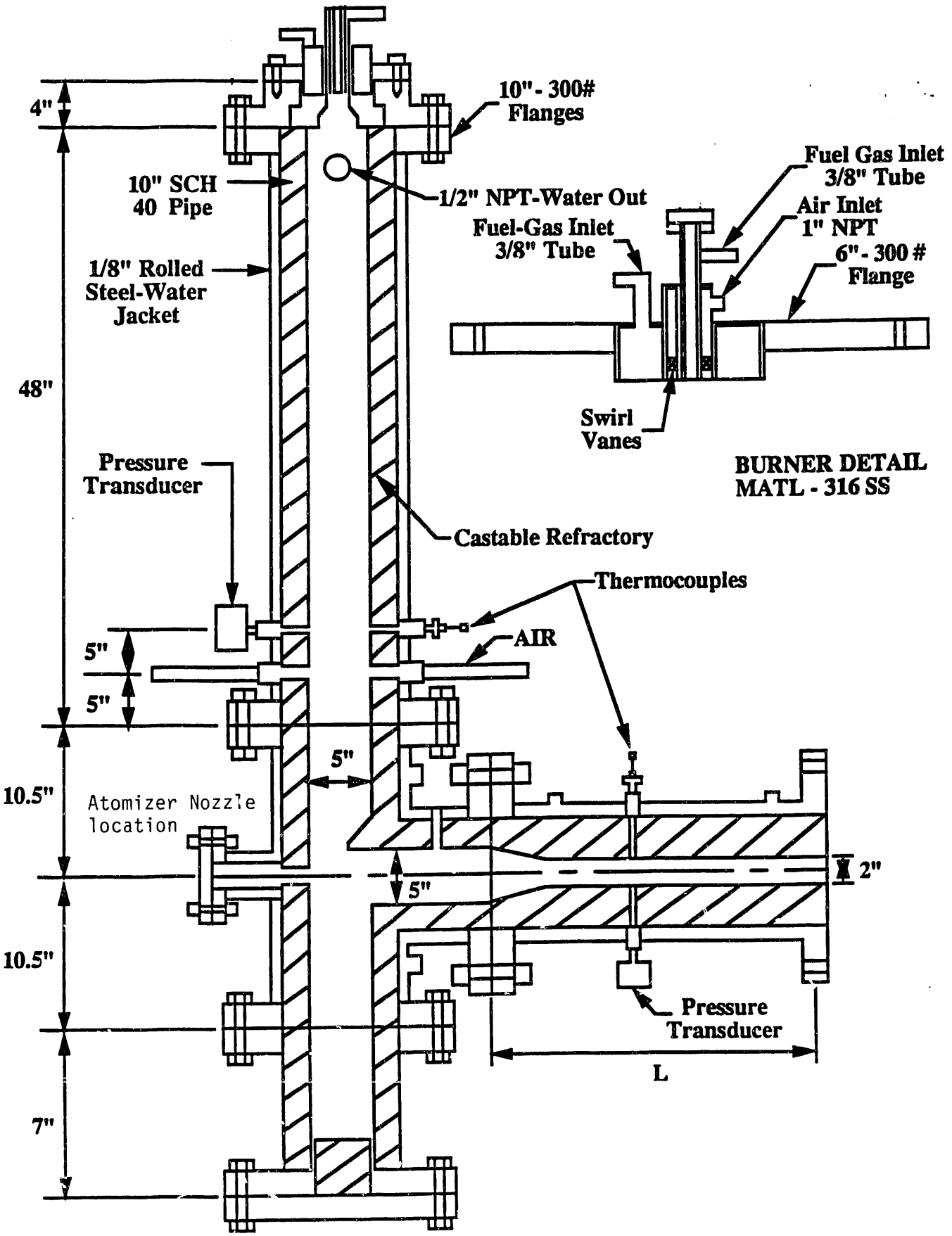


Figure IV.1 **DOE - HTHP Combustor Matl - Carbon Steel**

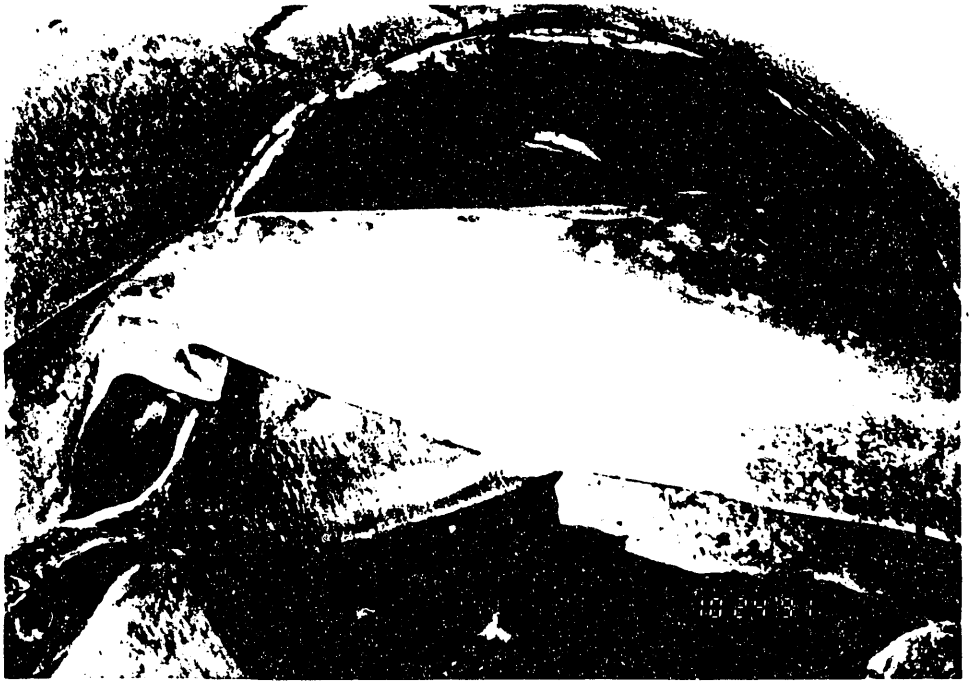


Figure IV.2 Photograph of Baffle

Figure IV.3 Photograph of Damaged Collection Electrodes and Tube Sheet

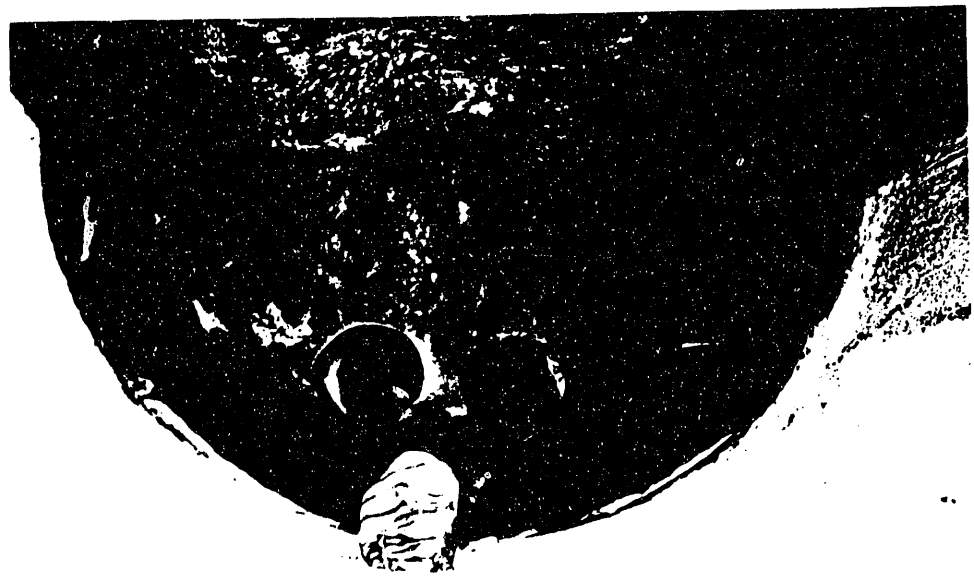


Figure IV.4 Photograph of Glass Bulb forming on agglomerator inlet gas opening

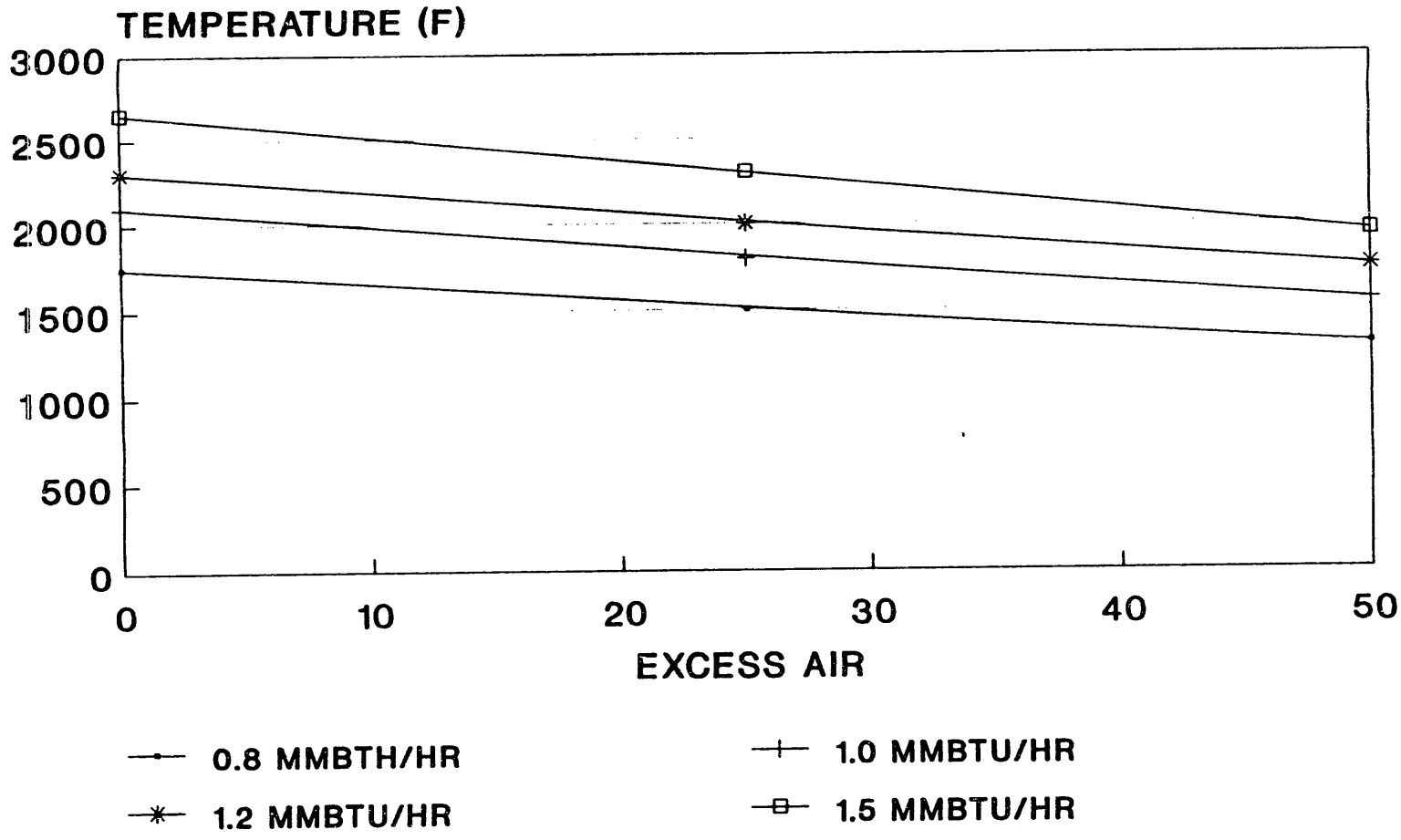


Figure V.1. ESA Temperature vs. Excess Air @ 180 Psia Pressure

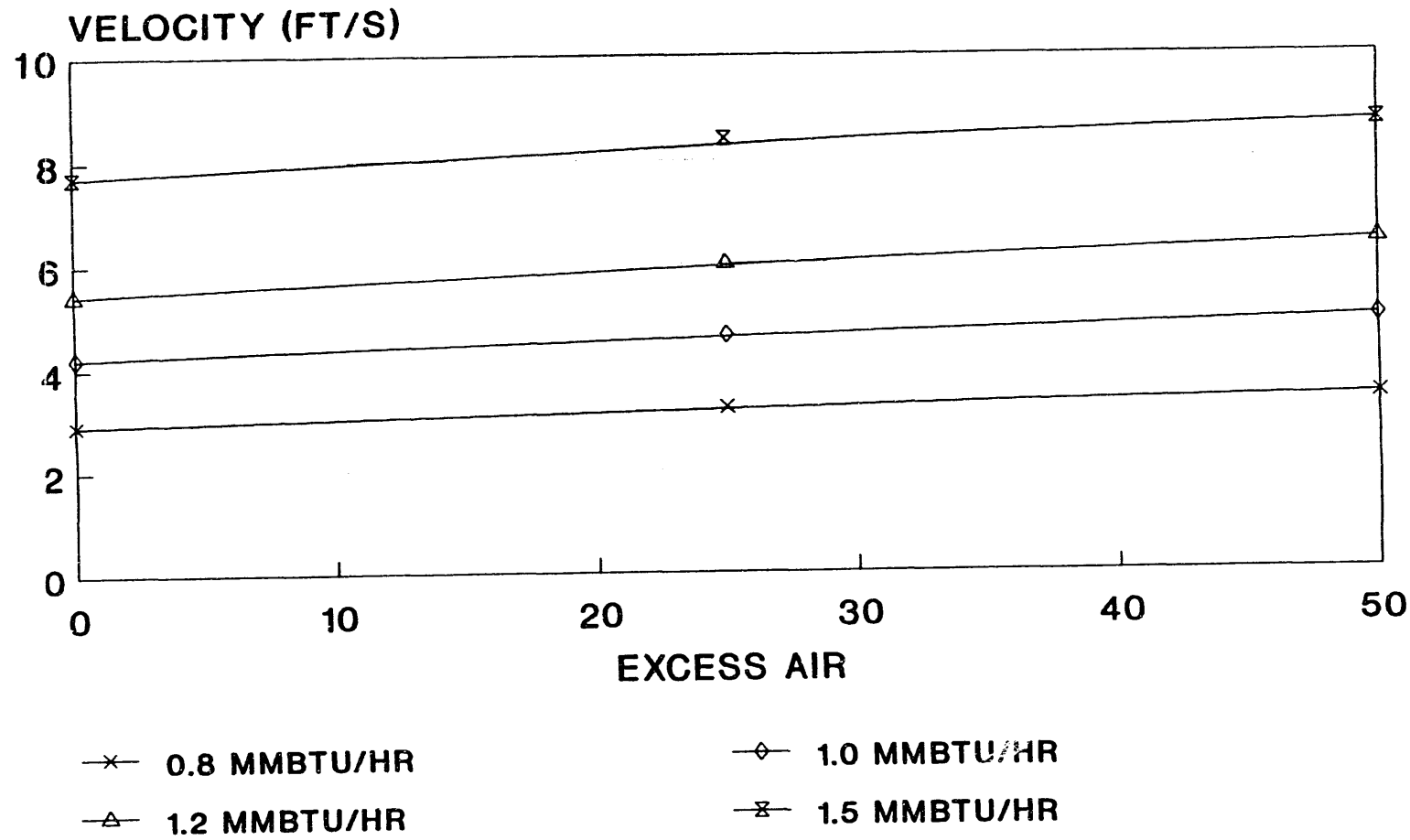


Figure V.2 ESA Velocity vs. Excess Air @ 180 Psia Pressure

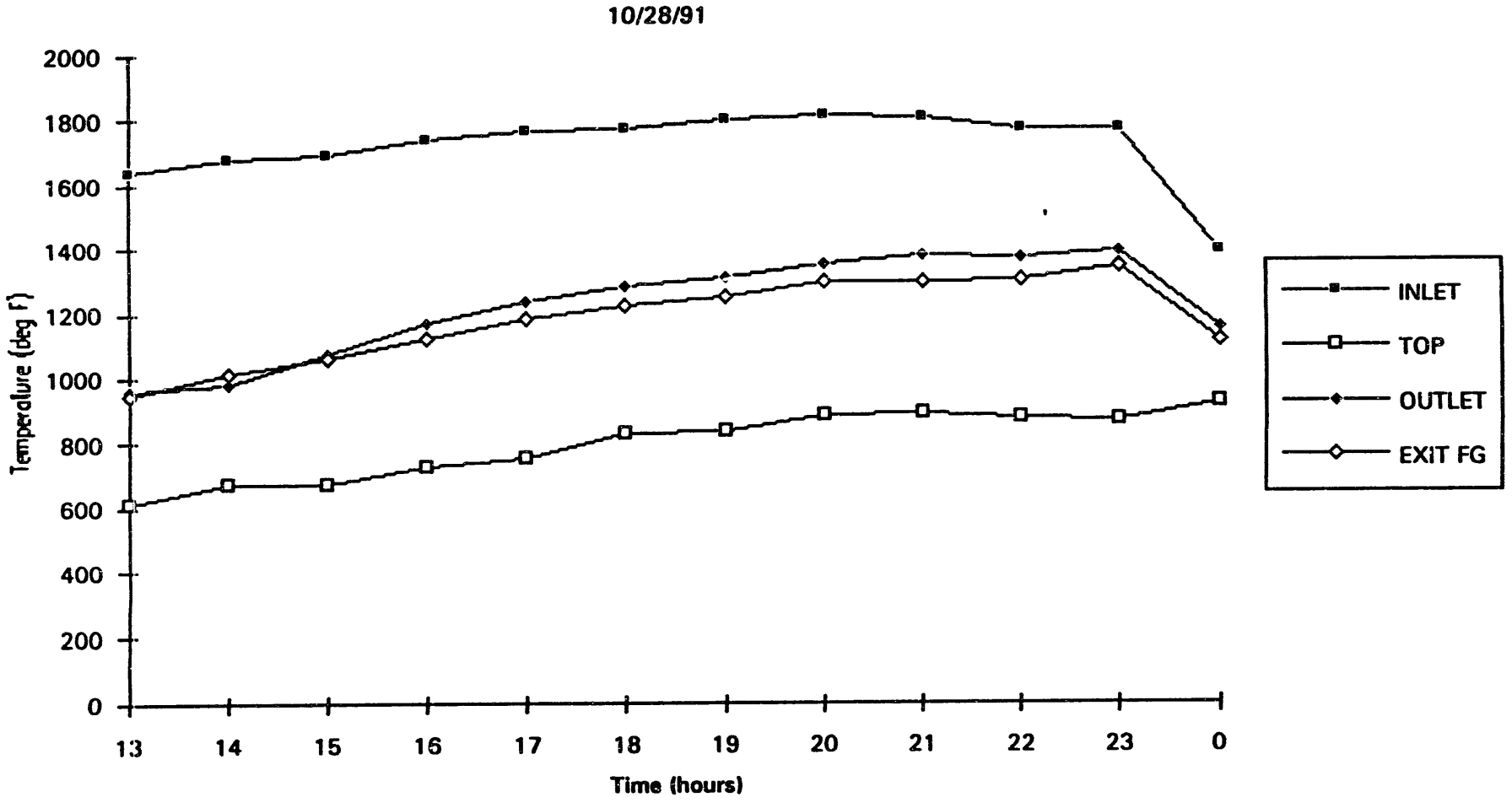


Figure V.3 ESA Temperatures During First 12 Hours Of Heat-up

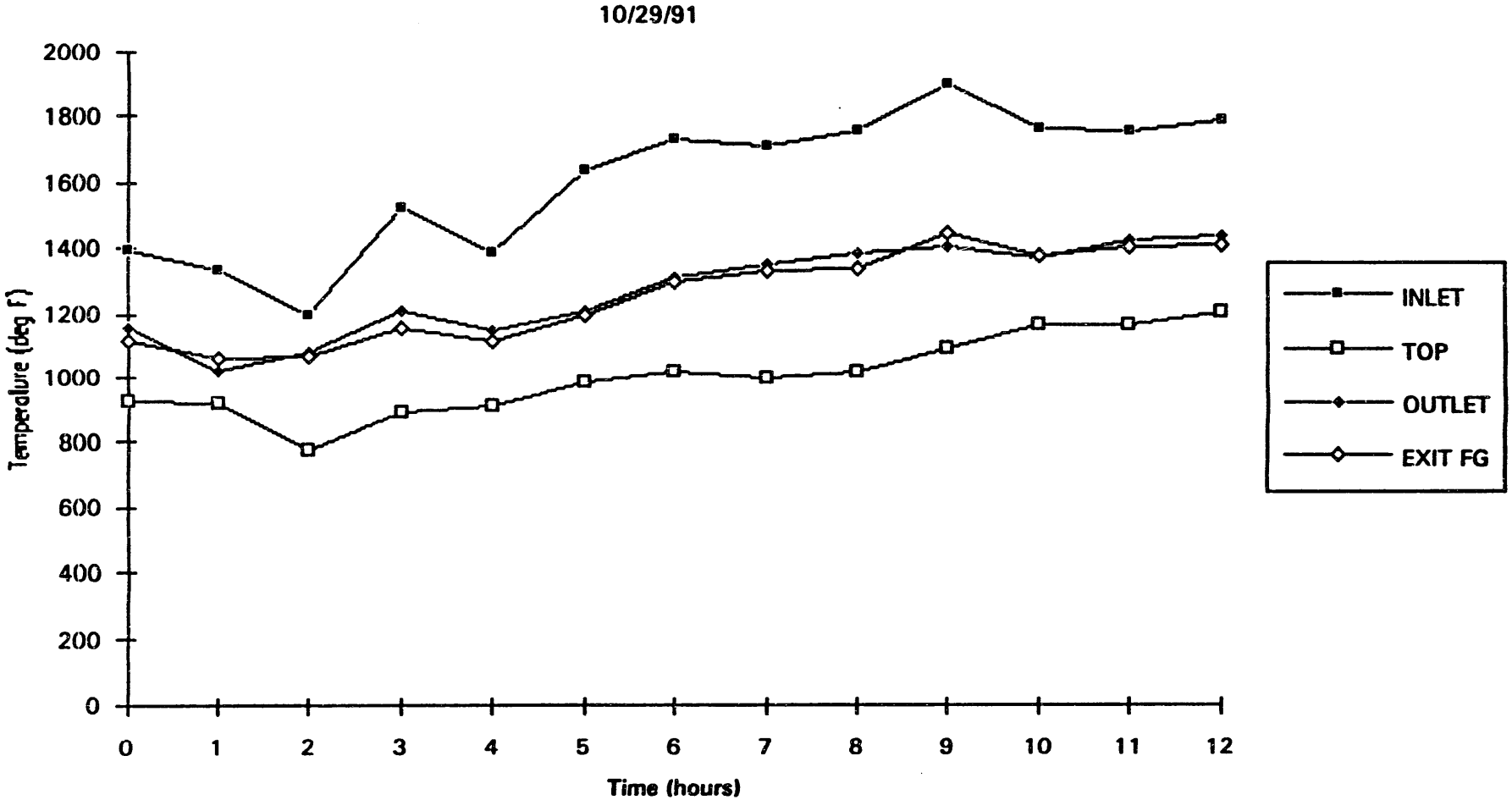


Figure V.4 ESA Temperatures Between 12 and 24 Hours Of Heat-up

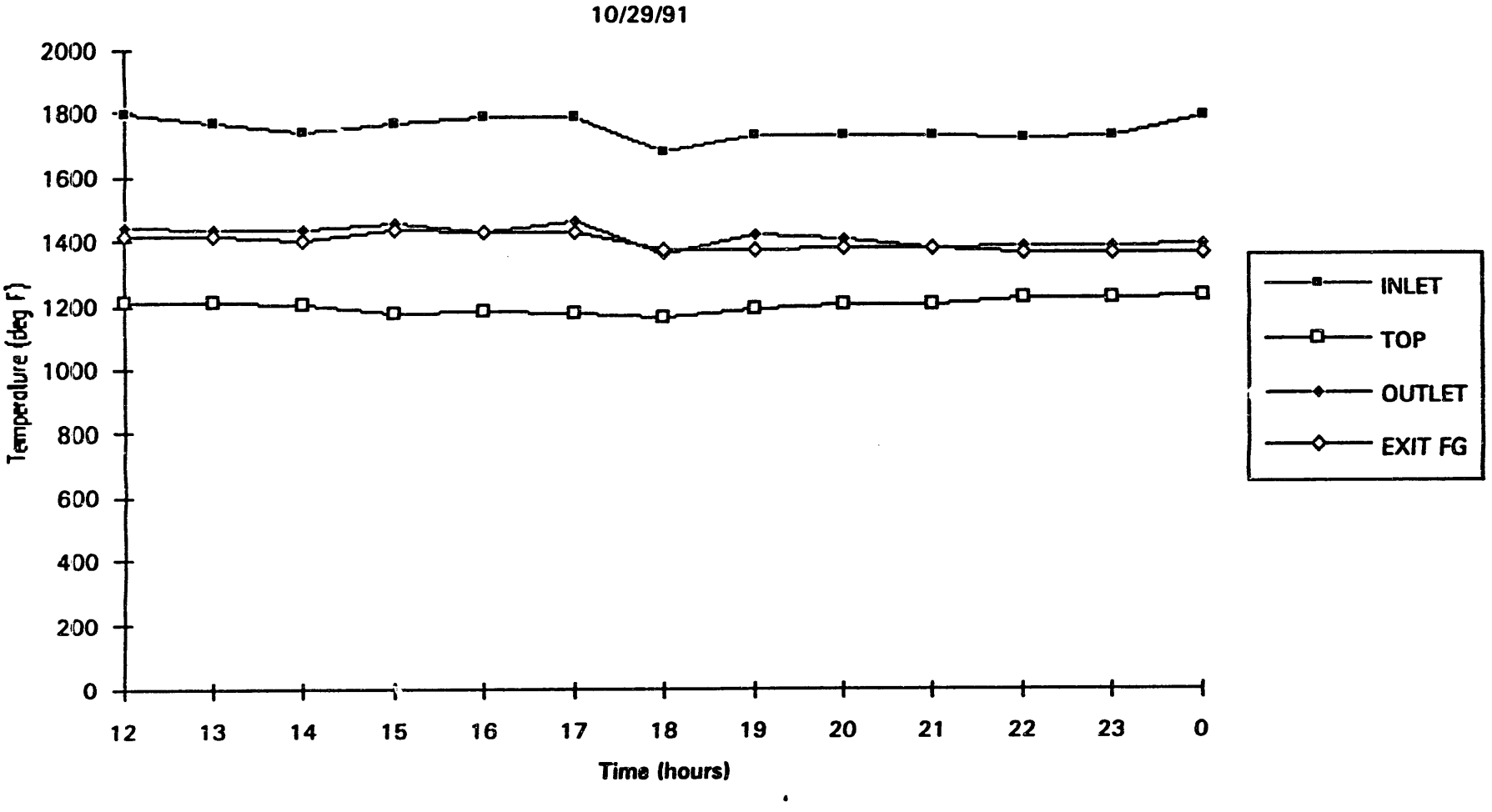


Figure V.5 ESA Temperatures Between 24 and 36 Hours Of Heat-up

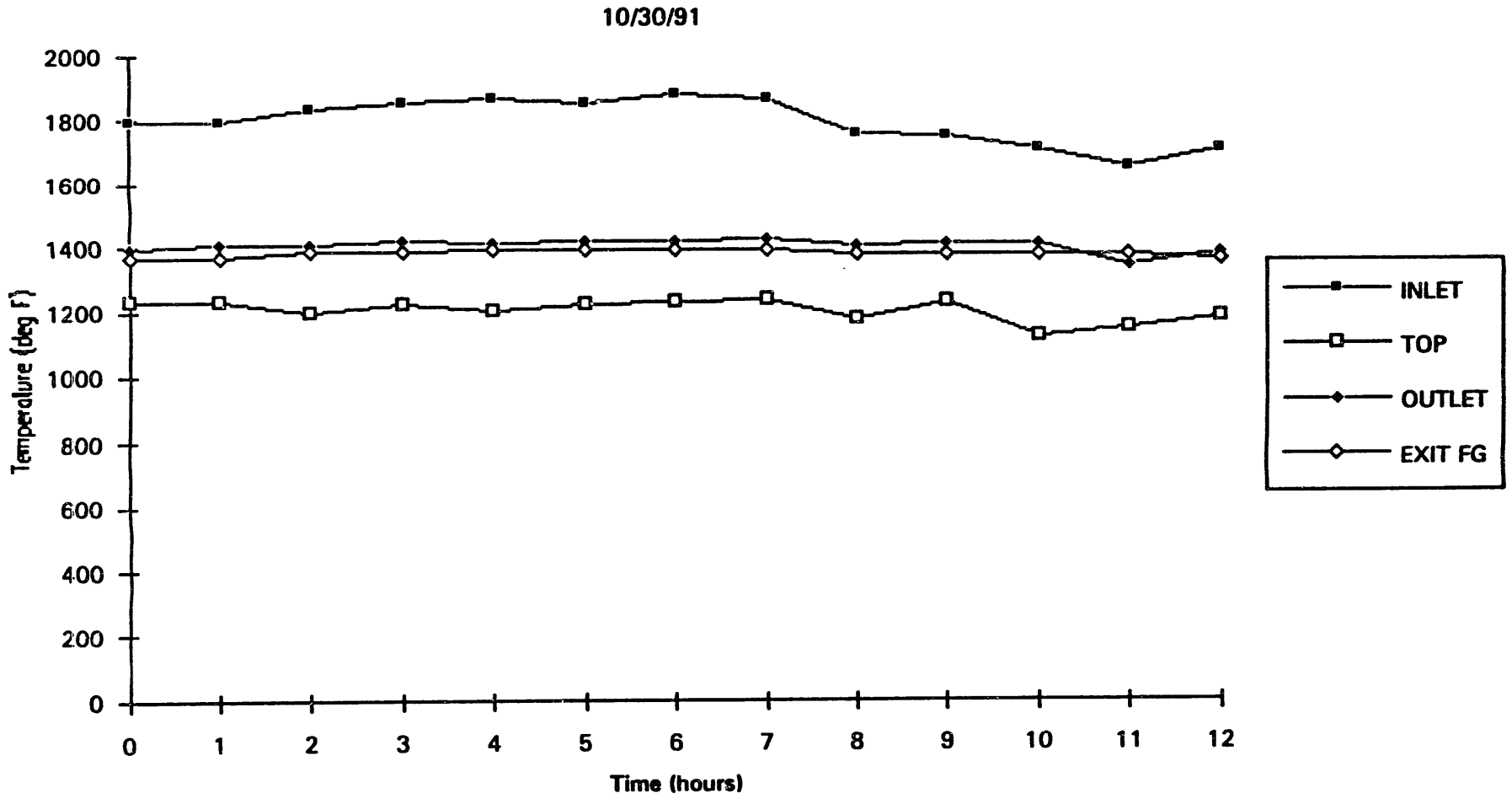


Figure V.6 ESA Temperatures Between 36 and 48 Hours Of Heat-up

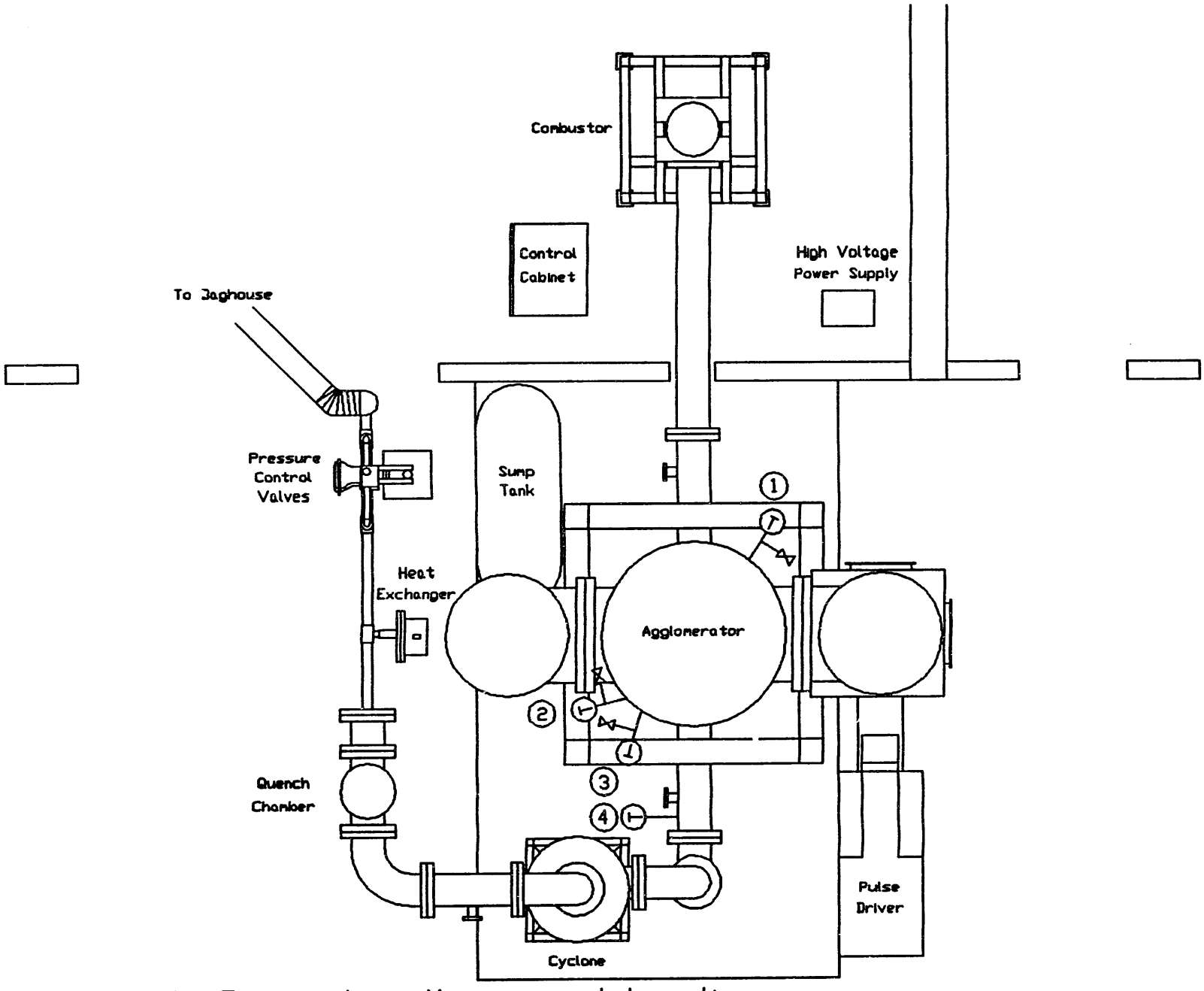


Figure V.7 . ESA Temperature Measurement Locations

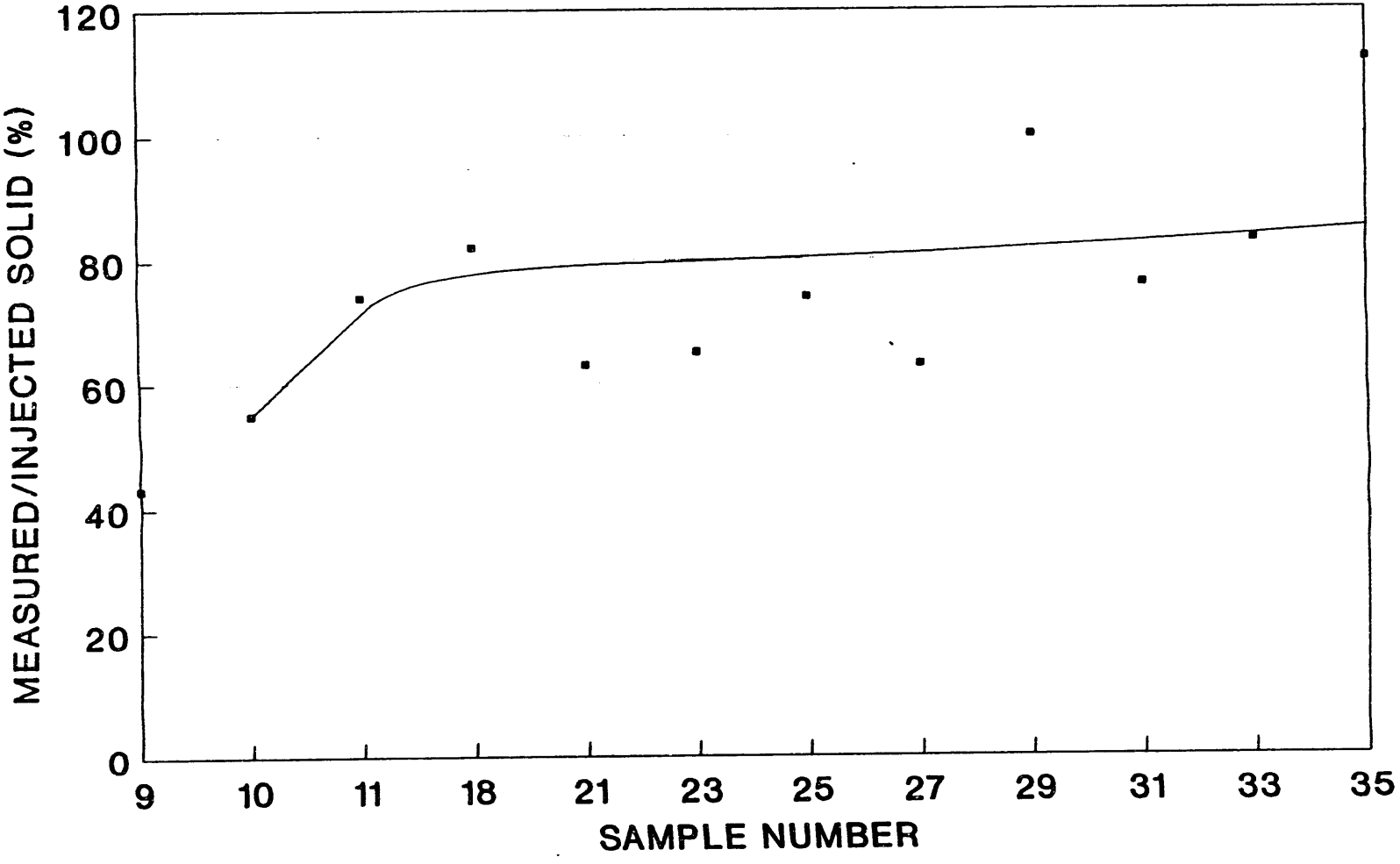


Figure V.8 . Percent Of Injected Alumina Recovered At Agglomerator Inlet

Table I.1

Summary of Gas Cleaning System Requirements for Slurry Coal Feeding

Operating Temperature °F	Cumulative Loading, ppm >5 micron	Cumulative Loading, ppm <2 micron	Gas Cleaning Performance Requirements to Meet Assumed Turbine/Environmental Standards, Percent			
			Erosion >5 micron	Deposition <2 Micron With Stack Cleanup	Deposition <5 Micron W/O Stack Cleanup	NSPS Overall
1800	4355	4355	99.77	98.16	99.91	99.84
2100	5443	5444	99.82	98.53	99.86	99.84
2300	6284	6284	99.84	98.73	99.84	99.84
2500	7258	7259	99.86	98.9	99.82	99.84

Table I.2

Summary of ESP Collection Efficiency
Shakedown Testing Using Alumina

Date	Velocity fps	Inlet Load gr/DSCF	Press. ATM	Inlet Temp F	Outlet Temp F	Volt kV	Capture Effic.	Water Vapor %
10/30/91	4.9	4.66	11.5	1795	1418	30	0.962	21
10/31/91	4.9	1.65	11.5	1795	1418	0	0.806	21
10/31/91	4.9	1.65	11.5	1765	1350	30	0.952	21
10/31/91	4.9	1.17	11.4	1741	1400	0	0.699	21
10/31/91	4.9	1.19	11.8	1740	1384	30	0.975	21
10/31/91	4.9	1.27	10.9	1776	1393	0	0.741	21
10/31/91	4.9	0.95	11.5	1760	1391	30	0.979	21
10/31/91	7.3	1.97	11.1	1707	1381	0	0.672	18
10/31/91	7.3	1.54	11.1	1707	1381	30	0.922	18
11/1/91	7.3	1.56	11.1	1692	1351	0	0.410	18
11/1/91	7.3	2.82	11.1	1773	1341	30	0.888	18
11/1/91	7.3	2.82	10.9	1769	1326	30	0.959	18
11/1/91	7.3	2.82	10.9	1763	1372	30	0.952	18

Table I.3

Summary of Physical Parameters
in Shakedown Testing

	Specific Collection Area	ESP Particulate Collection Effic.	Tube Velocity	Particle Residence Time	Mechanical Collection Effic.
High flow condition	181 min/ft	92.3% @30 kV/inch	7.3 ft/s	0.68 S	50.6%
Low flow condition	272 min/ft	96.7% @30 kV/inch	4.9 ft/s	1.02 sec	74.9%

Note: Collection tube area
4" ID = 0.33 ft
5' length - 5.18 ft^2
Total area (4 tubes) = 20.7 ft^2

TABLE III.1

AGGLOMERATOR MAJOR DIMENSIONS

• VESSEL DIAMETER	: 52" DIAMETER BY 15' LONG
• CHARGING ELECTRODE	: 1-1/2" DIAMETER BY 8' LONG WITH (8) 1/4" FINS (FOUR)
• AGGLOMERATING ELECTRODE	: 2" DIAMETER BY 8' LONG (FOUR)
• COLLECTING ELECTRODE	: 4" INSIDE DIAMETER BY 5'-7-1/4" LONG (EIGHT)
• GAS PASSAGES	: 1 THROUGH 4 PER SECTION
• POWER SUPPLY	
PULSE VOLTAGE SOURCE	: 100 KV_p, 200 $_{pps}$ OUTPUT
BASE VOLTAGE SOURCE	: 30 KVDC, 30 MA SUPPLY

TABLE III.2

ESA OPERATING CONDITIONS

Pressure	10-15 atmosphere
Temperature	1600 - 2500 F (1144 - 1644K)
Mass Flow Rate	0.15 - 0.30 lb/s

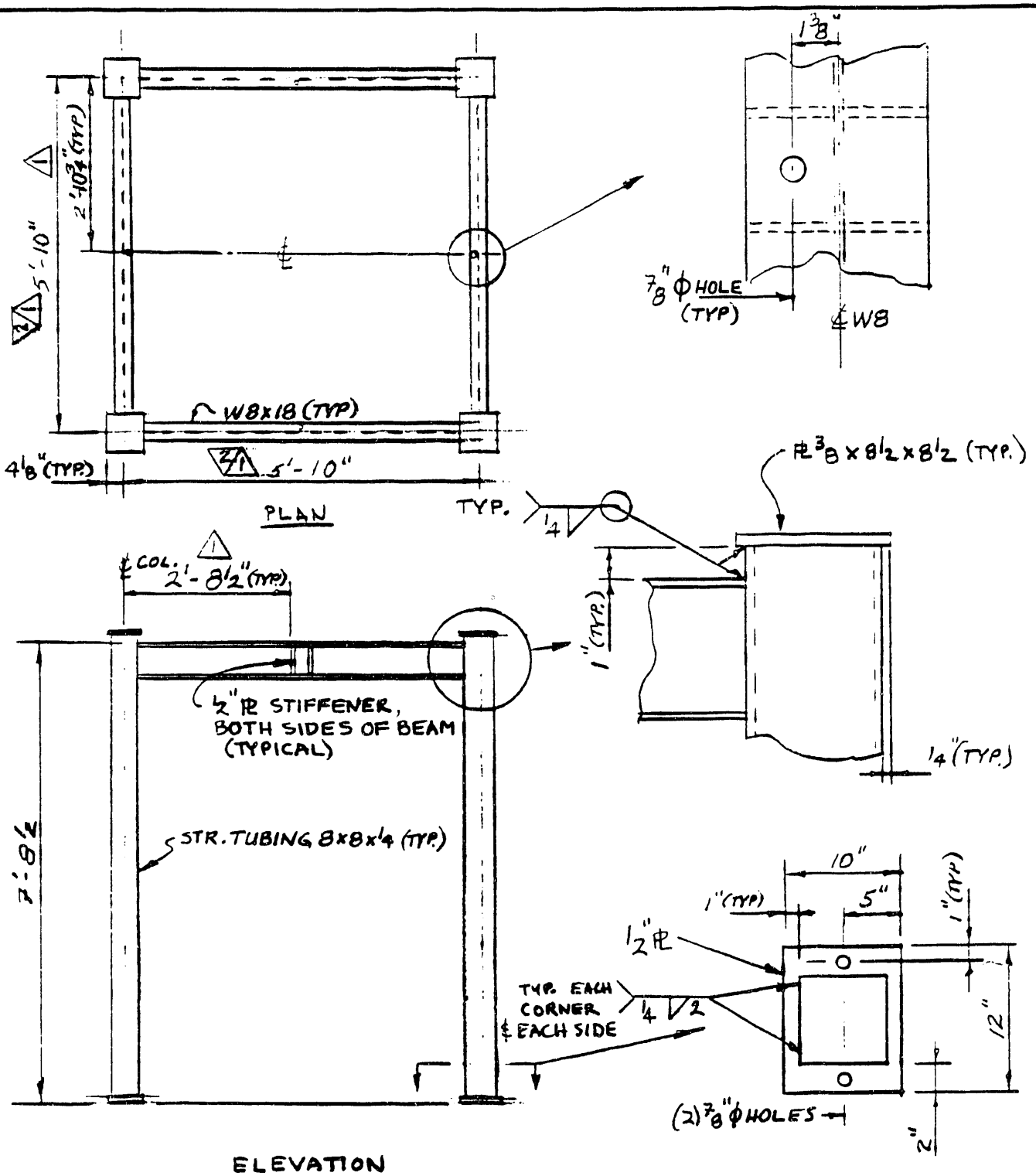
Table V.1

Summary of Sampling Data
Collected Using Fly-Ash Slurry

Tests	Date	Slurry Type	Slurry Rate (lb/min)	Ash Rate (lb/min)	Flue Gas Flowrate (SCFM) dry	Expected Loading (g/SCF)	ESP Inlet Temp. (F)	ESP Outlet Temp. (F)	ESP Pressure (Psig)	ESP Sample Port	ESP Power	Actual Loading (g/SCF)	Efficiency %
0	10/02	Ash	0.72	0.14	139.81	0.47	1605	1322	158	in	off	none	
1	10/15	Ash	0.77	0.15	175.83	0.40	862	548	154	in	off	0.0201	
2	10/15	Ash	0.70	0.14	170.30	0.37	862	551	156	in	off	0.0565	
3	10/16	Ash	0.98	0.20	245.21	0.36	1042	840	156	in	off	0.0152	
4	10/16	Ash	1.22	0.24	245.34	0.45	1279	788	155	in	off	0.0077	
5	10/18	Ash	1.40	0.28	178.73	0.71	1278	901	157	in	off	0.0143	
6	10/23	Ash	0.60	0.12	233.11	0.23	1687	1352	156	in	off	0.0921	

APPENDIX A

ELECTROSTATIC AGGLOMERATOR ASSEMBLY DRAWINGS



ELEVATION

NOTES: 1. MAT'L A-36 STEEL
2 WELD PER AWS SPECIFICATIONS

CES 577

NO.	REVISION	BY	DATE
2	5'-10" w. 5'-9 1/2"	FSJ	3-8-90
1	2'-8 1/2 w. 2'-9 1/2 5'-9 1/2 w. 5'-11 1/2; 2'-10 3/4 w. 2'-11 3/4	FSJ	8-25-89

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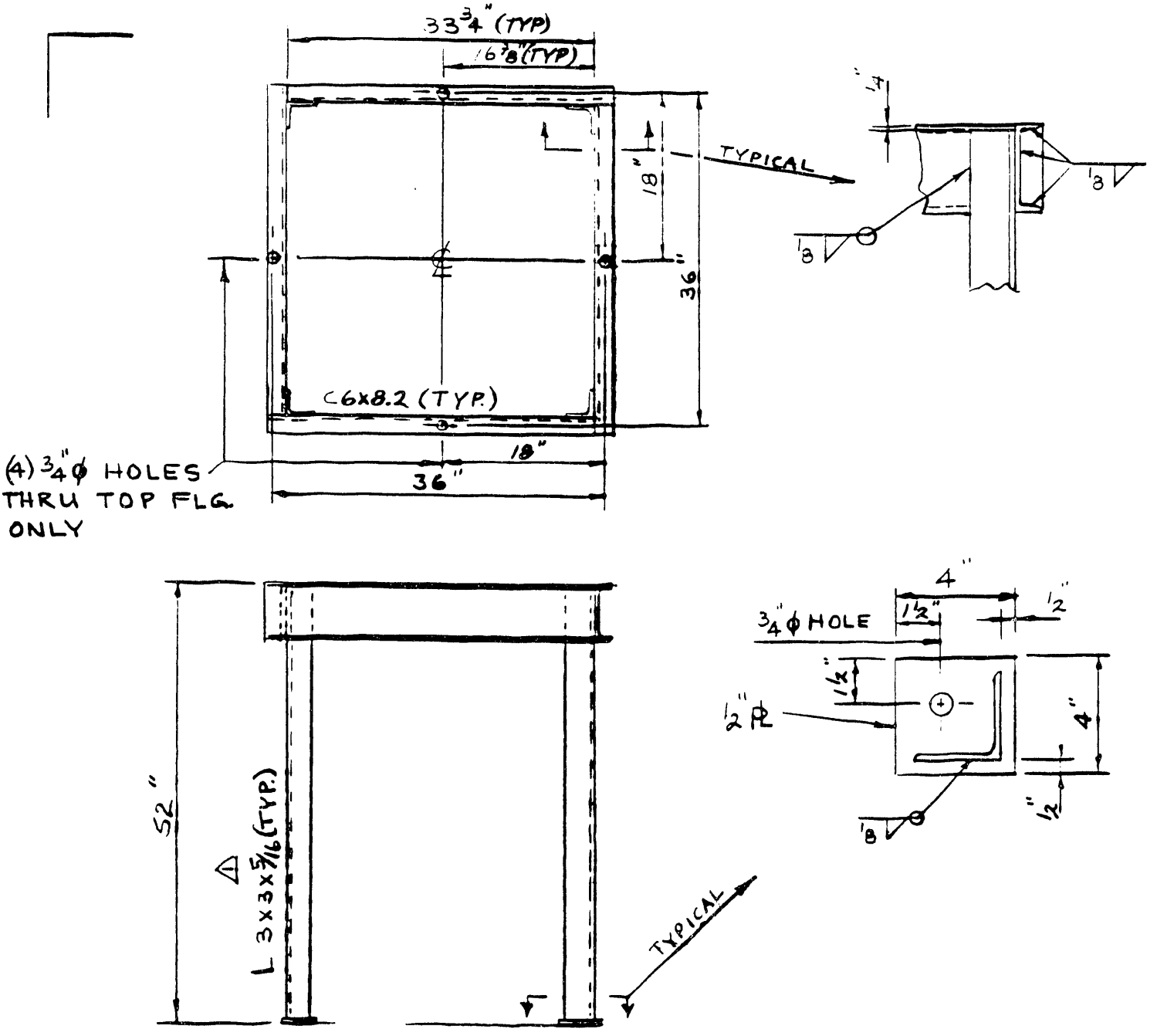
AGGLOMERATOR SUPPORT

DRN. FSJ DATE 6-20-89
CH'K. "
APP. "

CES-577-17-L



CYCLONE VESSEL SUPPORT
CES-577-18-L-1

NOTES
1. MATERIAL - ASTM A-36 C.S.
2. WELD PER AWS SPECIFICATIONS.

NO.	REVISION	BY	DATE
1	5/16 w. 1/4	FSJ	2-27-80

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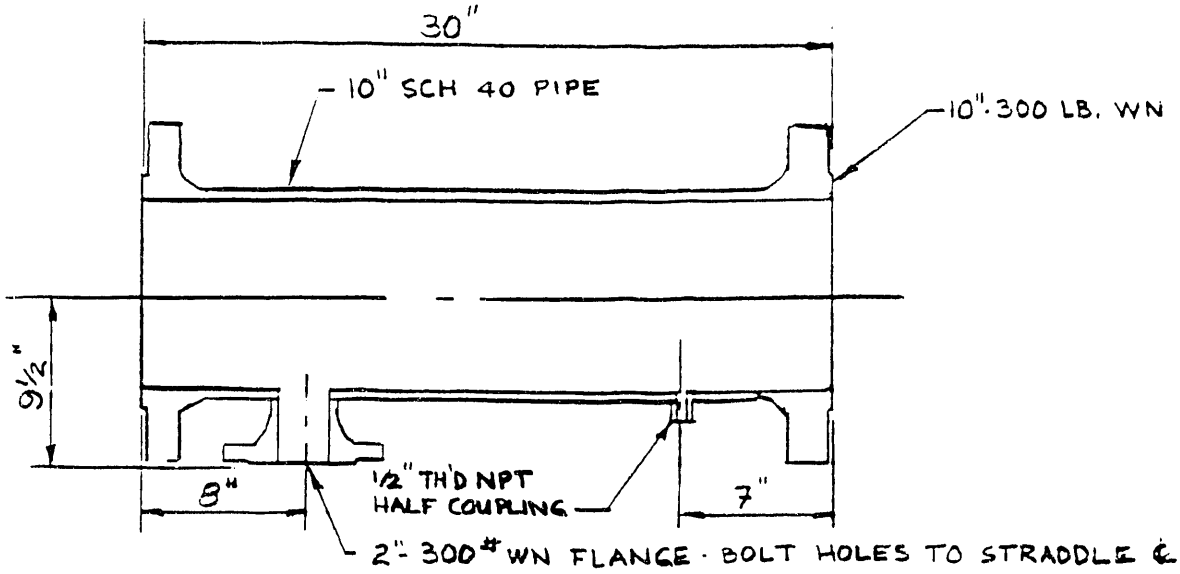
CYCLONE VESSEL SUPPORT

DRN. FSJ DATE 2-25-80 SCALE: NONE
CH'K ... " ...
APP. ... " ...
CES-577-18-L

KEUFFEL & ESSER CO. 88331



PIPE

CES-577-19-L-1

(3) REQUIRED

NOTE

1. SEE SPECIFICATION CES-577-SP-1.

REDRAWN - ORIG. 6-25-89

NO.	REVISION	BY	DATE

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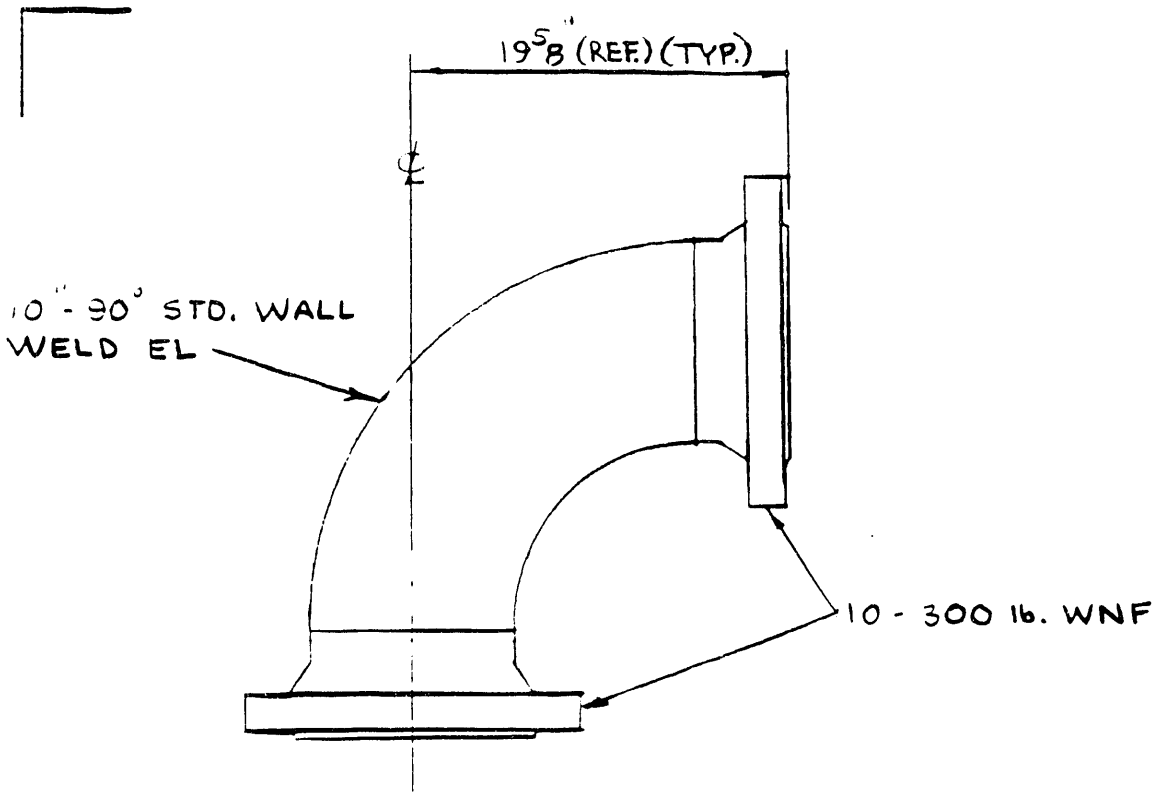
PIPE

DRN. F.S.J. DATE 2-8-90 SCALE: ½

CHK ..... : .....

APP. ..... : .....

CES-577-19-L



ELBOW

CES-577-20-L-1
Δ (3) REQUIRED

NOTE
1. SEE SPECIFICATION CES-~~577-SP-1~~

NO.	REVISION	BY	DATE
1	ADDED QUANTITY	FSJ	3-8-90

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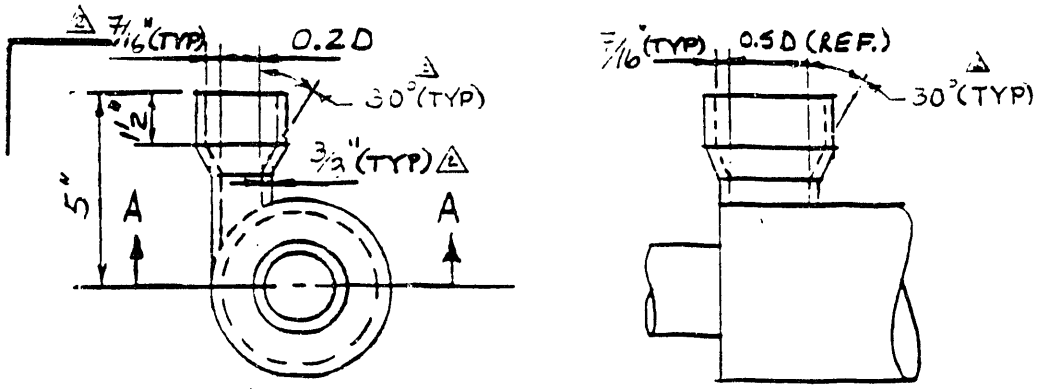
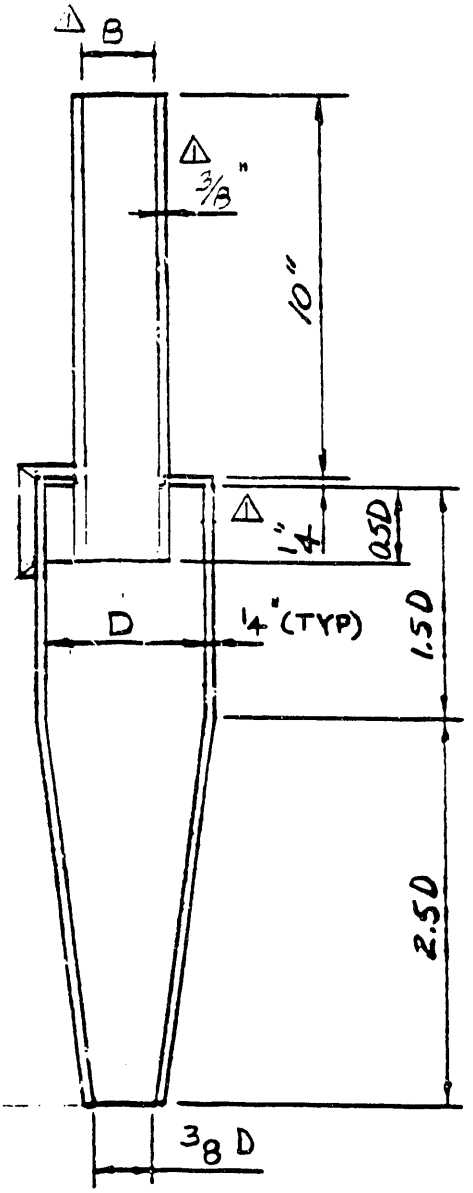
ELBOW

DRN. FSJ DATE 2-5-89 SCALE: NONE
CH'K " "
APP. " "

CES-577-20-L

KEUFFEL · ESSER CO. 55331





	DIMENSION "D"	"B"
CYCLONE CES-577-21-L-1	3.19"	1.16"
CYCLONE CES-577-21-L-2	3.93"	1.61"
CYCLONE CES-577-21-L-3	4.72"	2.08"

MATERIAL - SILICON CARBIDE
TEMPERATURE - 2500°F

NOTE:

1. DIMENSIONS INVOLVING "D" ARE IMPORTANT AND SHOULD BE HELD.
2. WALL THICKNESSES MAY BE INCREASED TO THOSE NEEDED FOR STABLE MANUFACTURING AND HANDLING.
3. THE PART OF THE OUTLET TUBE INSIDE OF THE CYCLONE SHOULD BE KEPT AS THIN AS POSSIBLE.
4. ALL INTERIOR AND EXTERIOR CORNERS AND EDGES SHALL HAVE A MINIMUM RADIUS OF 1/8".

SECTION A-A

NO.	REVISION	BY	DATE
2	3/8 W. 1/4; 7/16 R 3/8; ADD ANGLE	FSJ	5-24-90
1	3/8" WAS 1/4" B WAS 0.5D; DELETED 1/8" DIM.	FSJ	5-22-90

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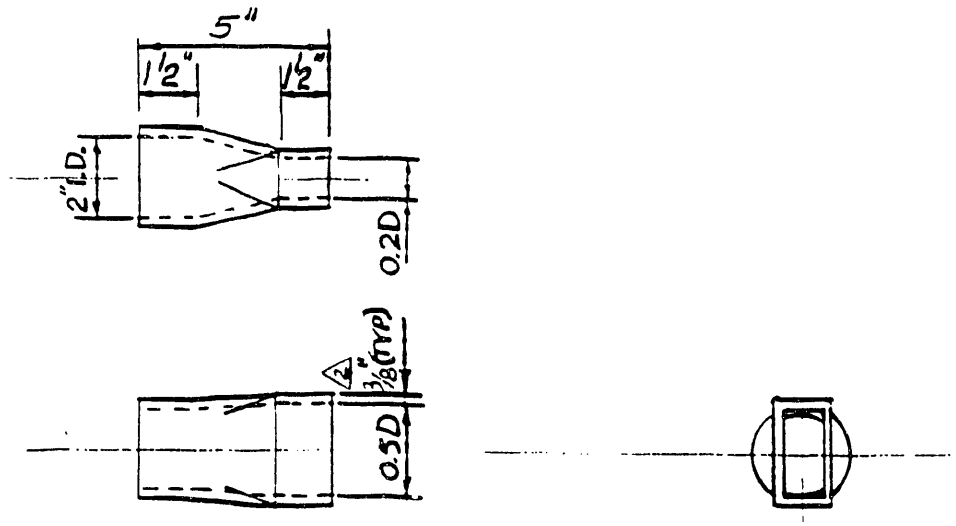
CERAMIC CYCLONES

DRN. FSJ ..... DATE 5-16-89 SCALE: NONE
CH'K .....
APP. .....

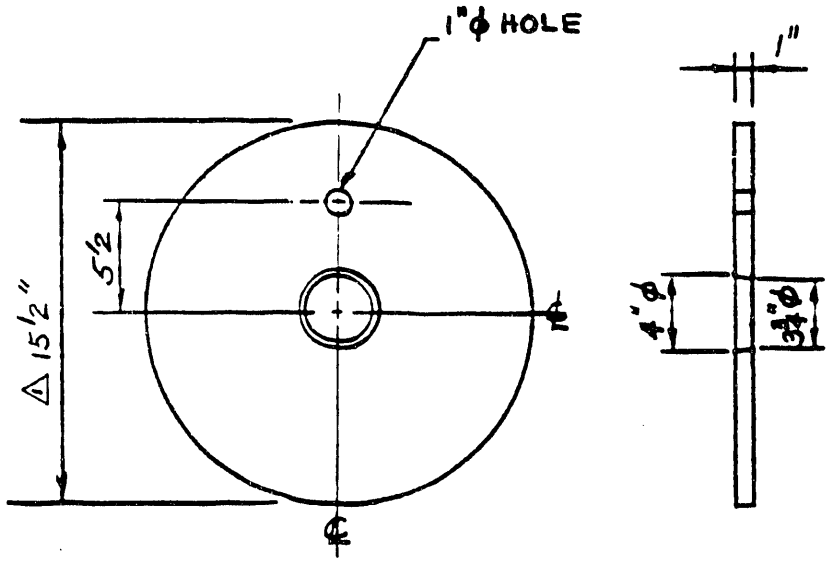
CES-577-21-L



TRANSITION CES-577-22-L-1, 2, 3

SEE DWG. CES-577-21-L FOR 'D' DIMENSION.
NUMBERS FOR THESE PARTS CORRESPOND TO THE SAME DASH NUMBERS ON DRAWING CES-577-21-L.

SEE DWG. CES-577-21-L FOR MATERIAL, CONDITIONS AND NOTES.



SUPPORT PLATE
1 REQUIRED
CES-577-22-L-4

NO.	REVISION	BY	DATE
2	3/8" WAS 1/4"	FSJ	5-22-90
1	15½ WAS 18	FSJ	4-5-90

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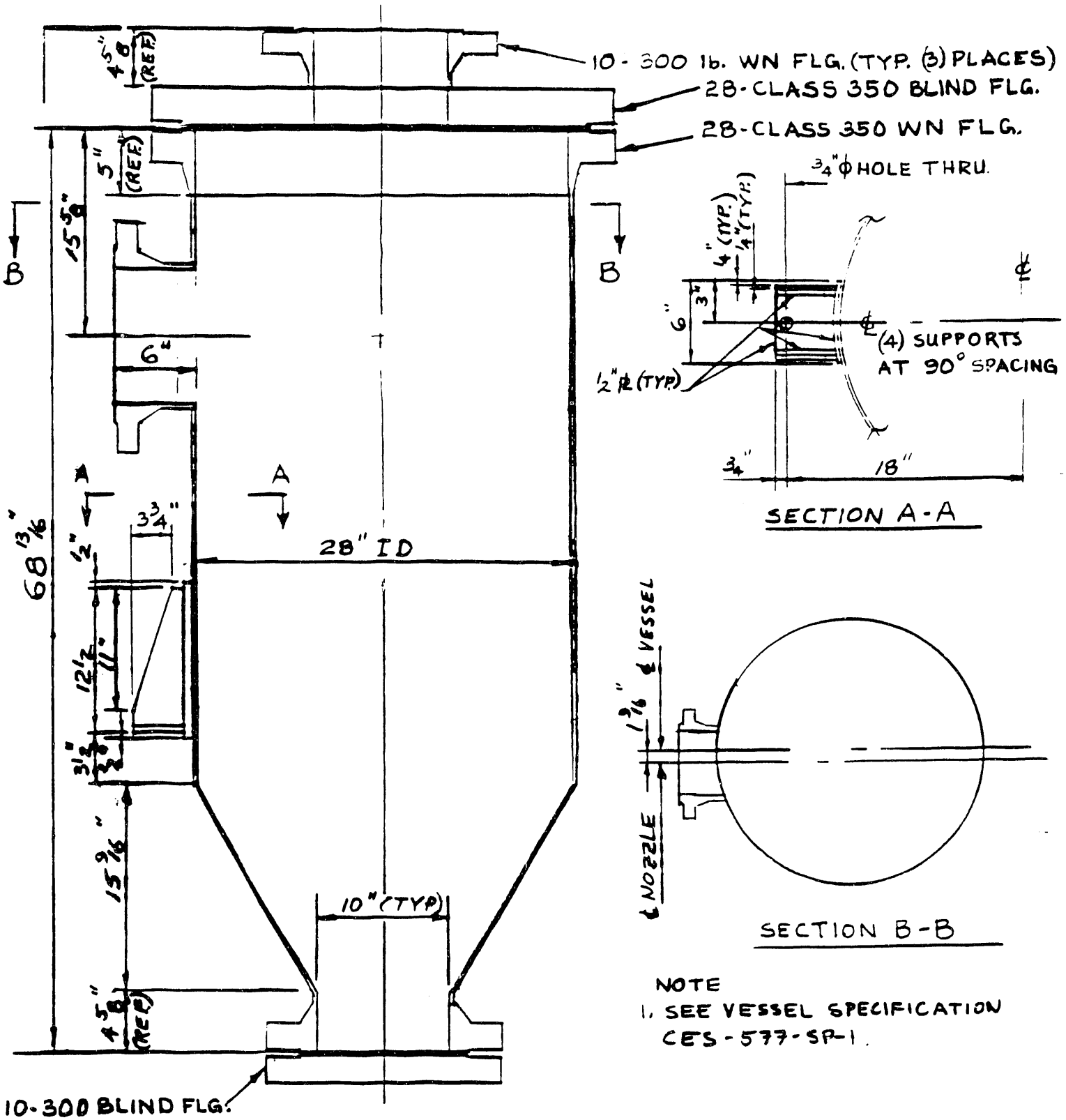
CERAMIC CYCLONE PARTS

DRN. FSJ ..... DATE 6-26-89
CH'K .....
APP. .....

SCALE: NONE

CES-577-22-L



CYCLONE VESSEL
CES-577-23-L-1

SECTION A-A

SECTION B-B

NOTE
1. SEE VESSEL SPECIFICATION CES-577-SP-1.

NO.	REVISION	BY	DATE

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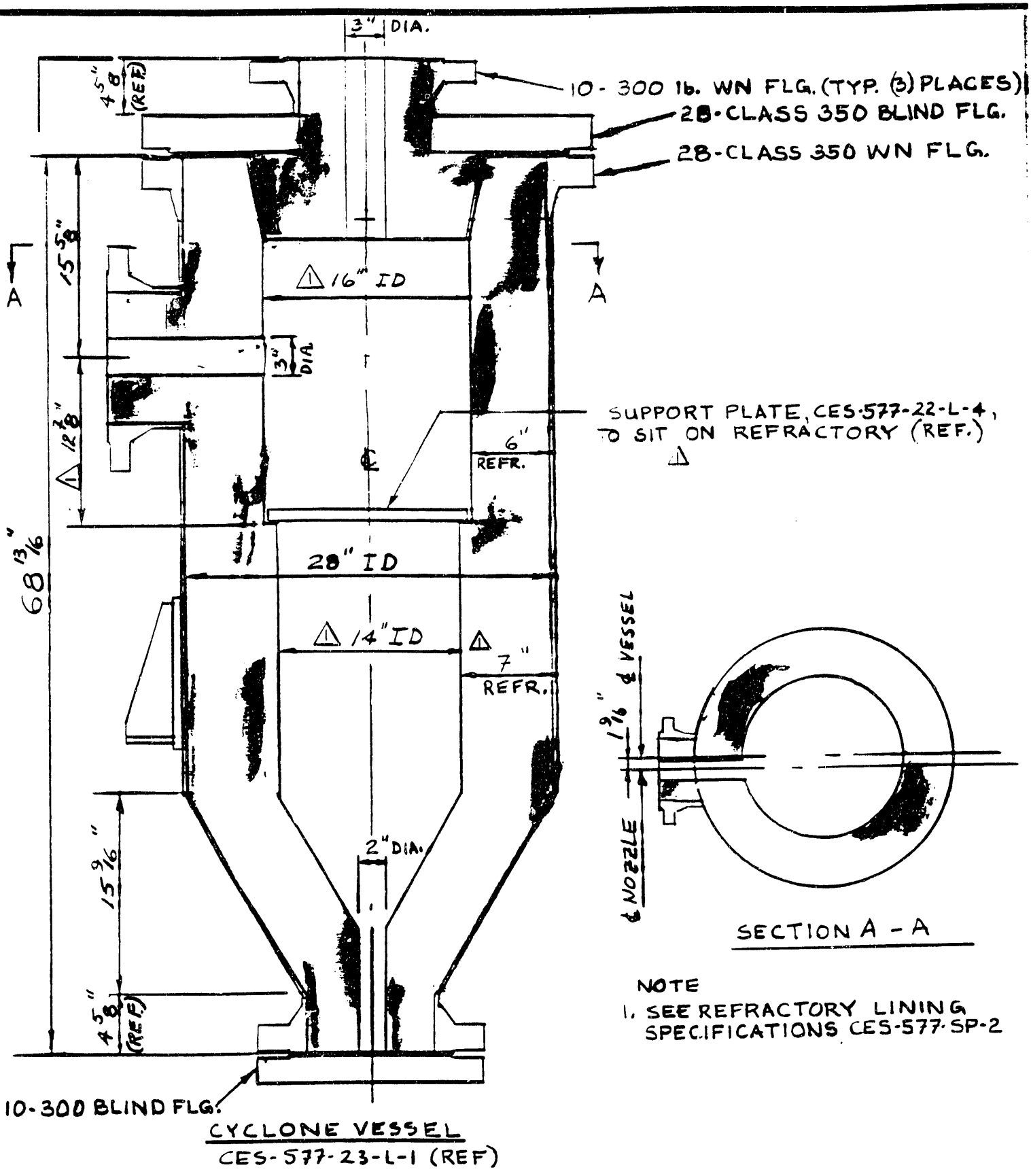
CYCLONE VESSEL

DSN. F.S.J.	DATE 2-25-	SCALE:	
CH'K.	"	CES-577-23-L	
APP.	"		



CYCLONE VESSEL
CES-577-23-L-1 (REF)

SECTION A - A

NOTE

1. SEE REFRACTORY LINING SPECIFICATIONS CES-577-SP-2

NO.	REVISION	BY	DATE
1	ADDED LEDGE & DIMENSIONS	FSJ	4-5-90

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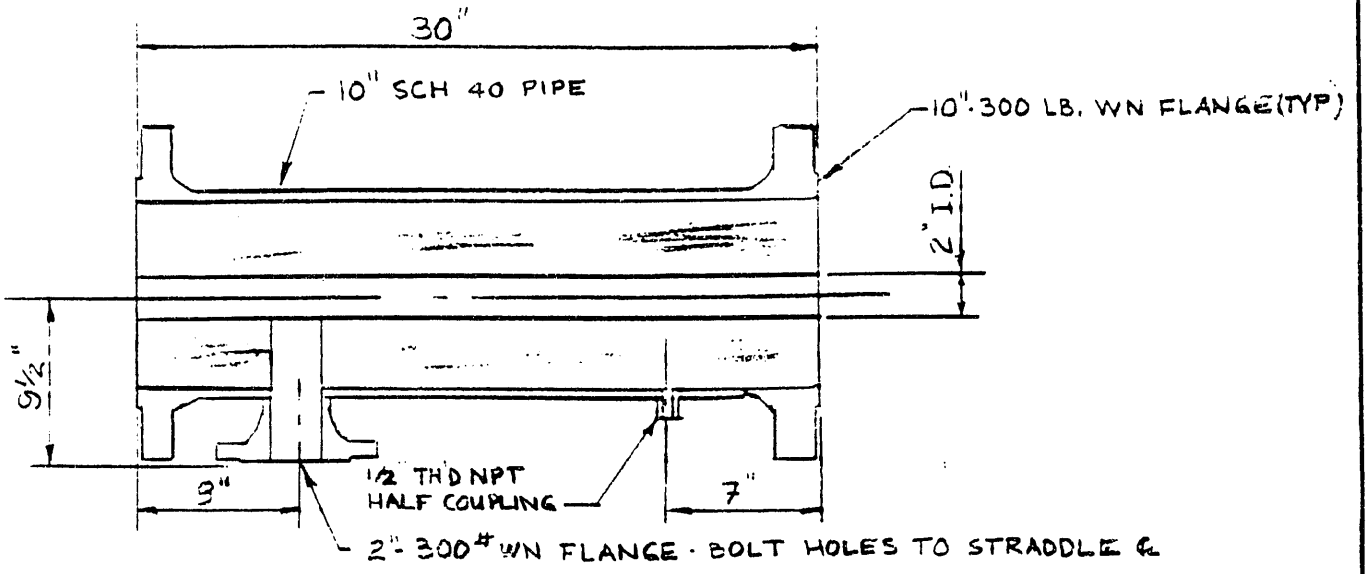
CYCLONE VESSEL REFRACTORY

DRN. FSJ DATE 3-15-90 SCALE: ¾"
CH'K " "
APP. " "

CES-577-26-L

KEUFFEL & ESSER CO 86331



PIPE

CES-577-27-L-1

NOTE

1. SEE SPECIFICATION CES-577-SP-2

REDRAWN - ORIG. 6-25-89

NO.	REVISION	BY	DATE

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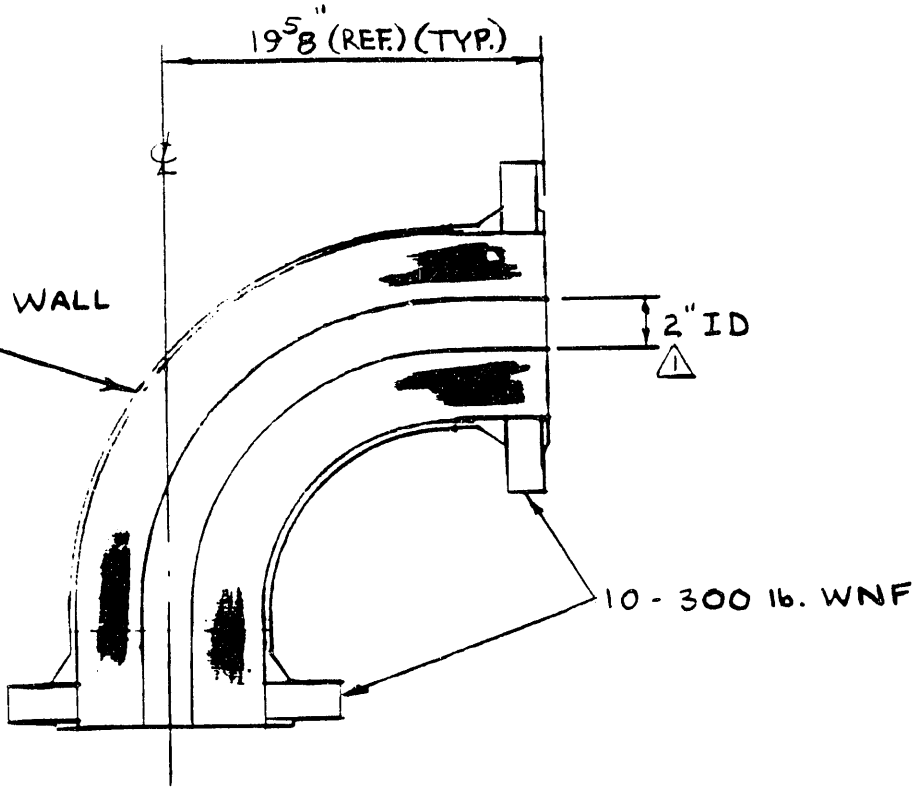
PIPE REFRACTORY

DRN. F.S.J.. DATE 1-3-90 SCALE: ½

CH'K .....

APP.....

CES-577-27-L



ELBOW

CES-577-20-L-1

NOTE

1. SEE SPECIFICATION CES-577-SP-2

NO.	REVISION	BY	DATE
1	2" w. 3°	FSJ	2-2-90

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ELBOW REFRACTORY

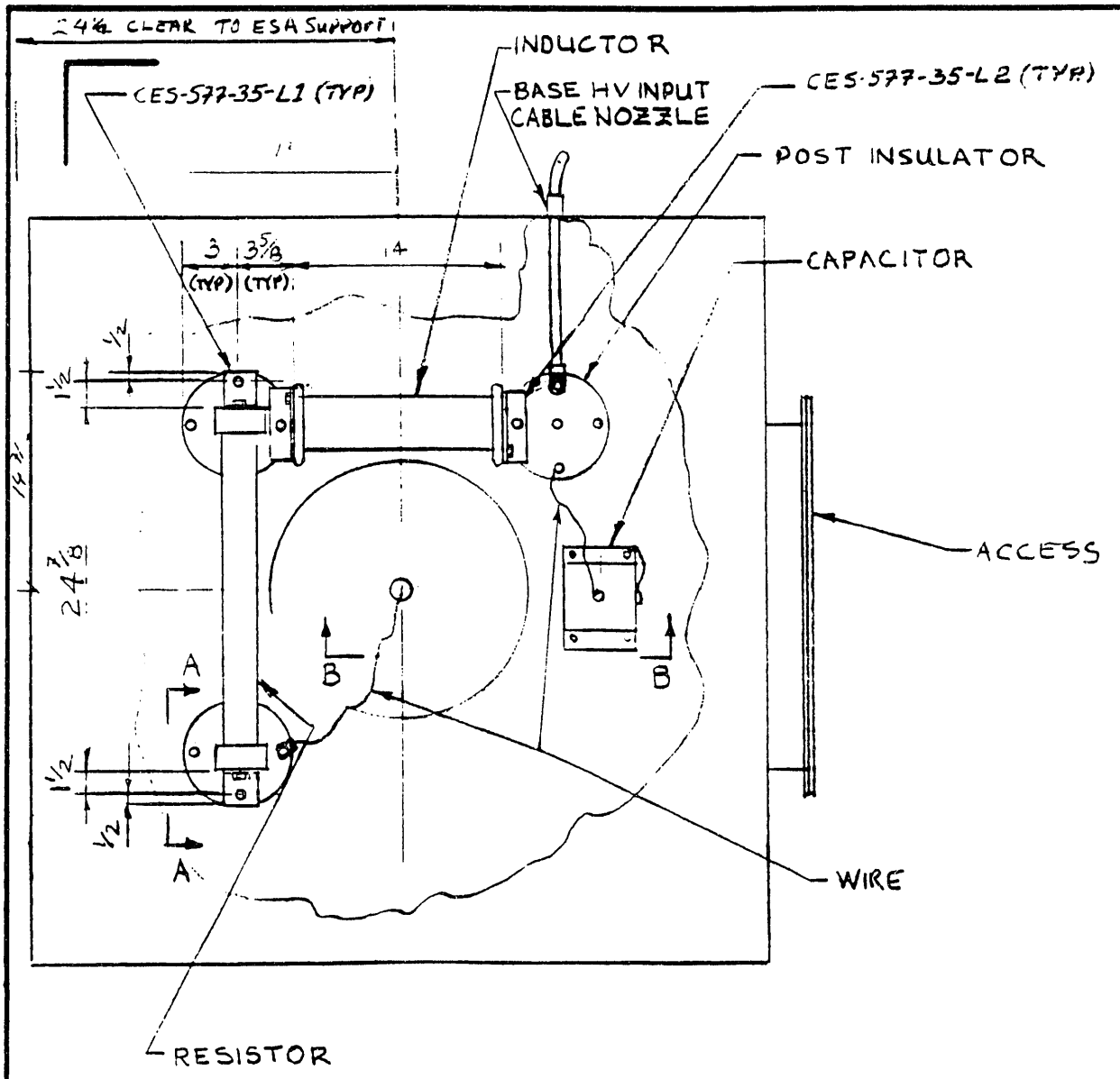
DRN. FSJ DATE 2-15-89 SCALE: NONE

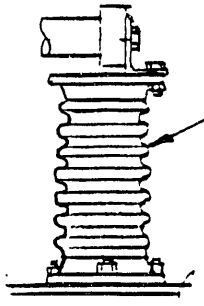
CH'K ---- " ----

APP. ---- " ----

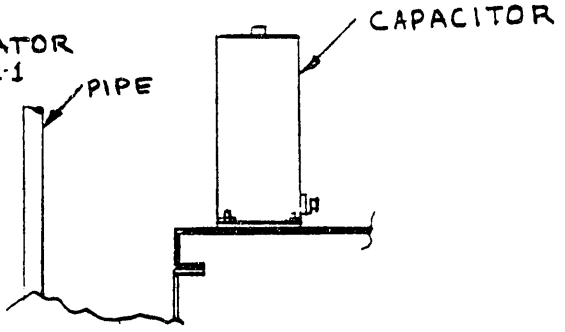
CES-577-20-L

KEUFFEL & ESSER CO. 55331





SECTION A-A



SECTION B-B

NO.	REVISION	BY	DATE
1	MOVED BASE HV INPUT	FSJ	6-6-90

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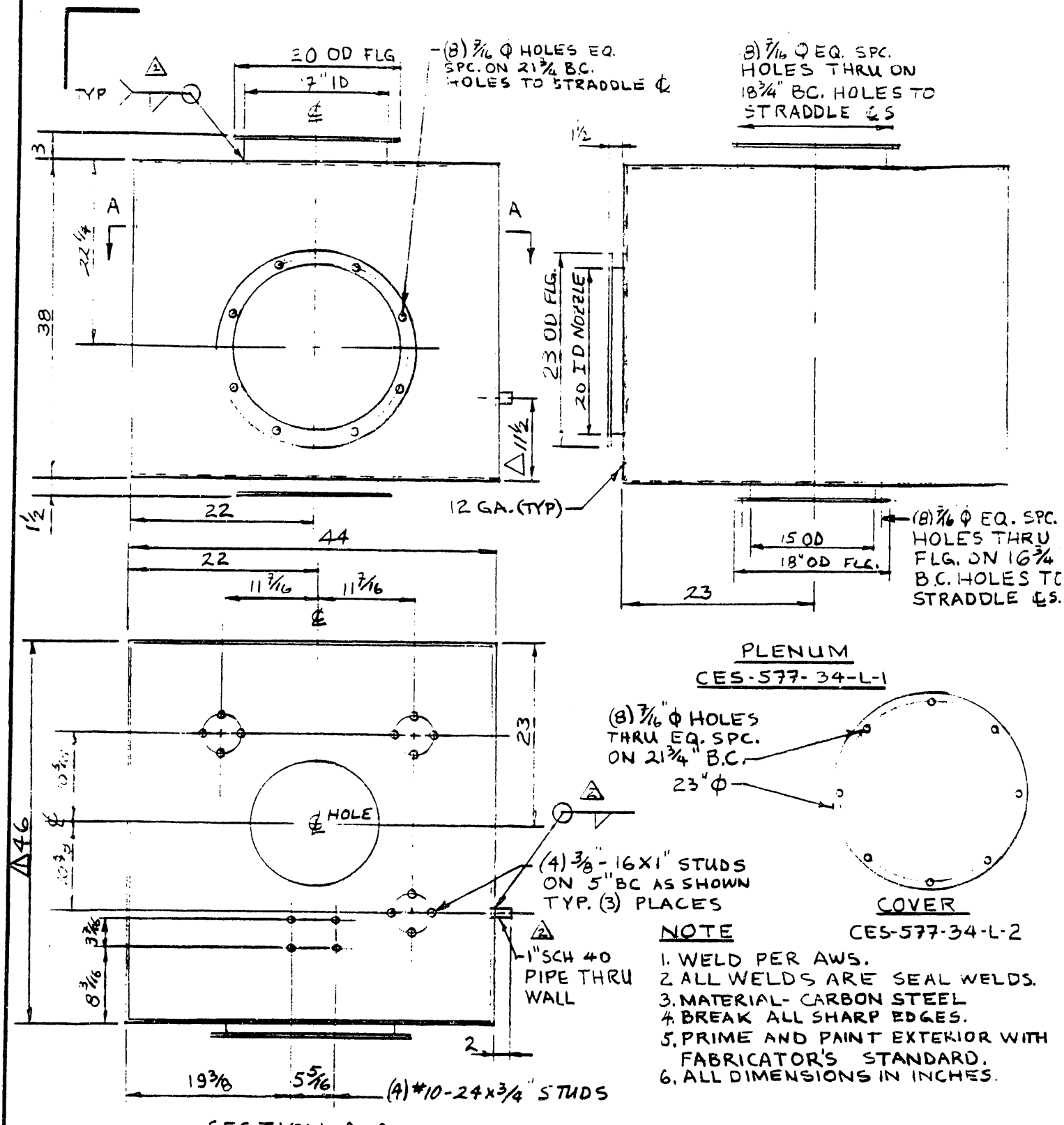
HT-HP ESA
HV PLENUM ARRANGEMENT

DRN. F.S.J... DATE 5-19-90 SCALE: NC
CH'K .....
APP.....

CES-577-33-L



SECTION A-A

PLENUM

CES-577-34-L-1

COVER

CES-577-34-L-2

NOTE

1. WELD PER AWS.
2. ALL WELDS ARE SEAL WELDS.
3. MATERIAL- CARBON STEEL
4. BREAK ALL SHARP EDGES.
5. PRIME AND PAINT EXTERIOR WITH FABRICATOR'S STANDARD.
6. ALL DIMENSIONS IN INCHES.

NO.	REVISION	BY	DATE
2	MOVED 1" PIPE. ADD WELD SYMBOLS	FSJ	7-6-90
1	46 DIM. WAS MISSING	FSJ	6-27-90

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HT-HP ESA

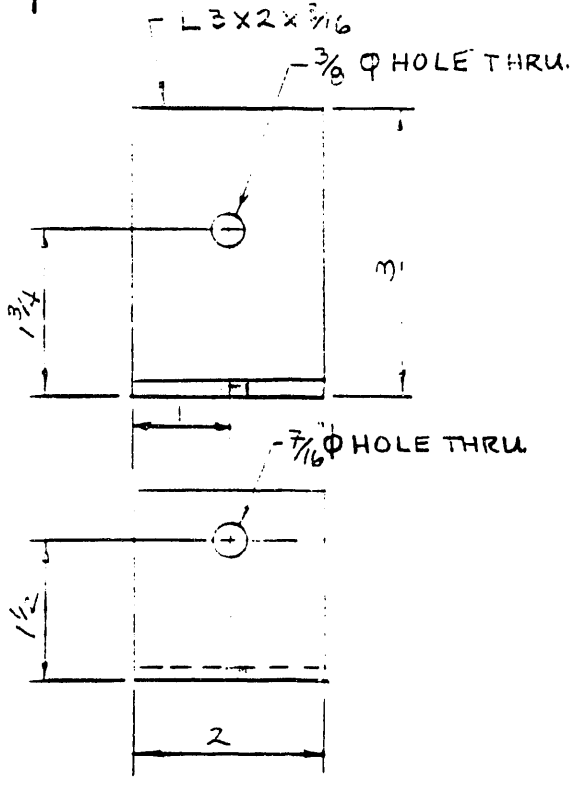
HV PLENUM

DRN. FSJ DATE 12-21-90 SCALE: ~

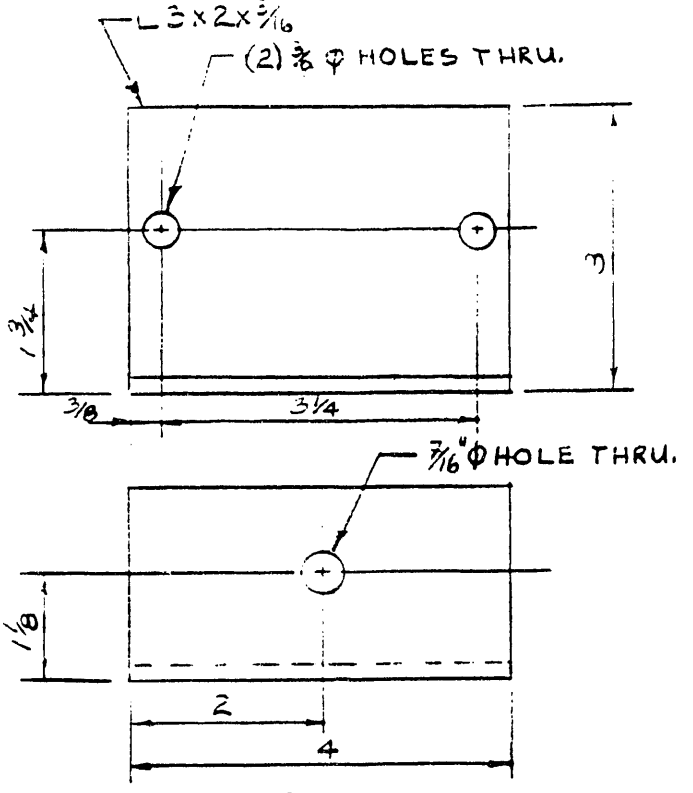
CH'K .....

APP. .....

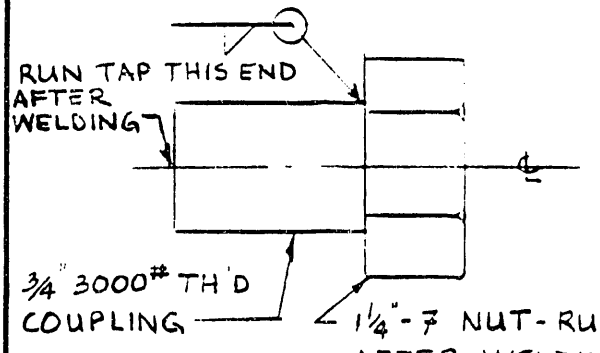
CES-577-34-L



CLIP
CES-577-35-L1
(2) REQUIRED



CLIP
CES-577-35-L2
(2) REQUIRED



⚠ HV COUPLING
CES-577-35-L3
(1) REQUIRED

NOTES
1. MATERIAL - A-36 CARBON STEEL
2. ALL DIMENSIONS INCHES
3. BREAK ALL SHARP EDGES
4. NO PAINT

NO.	REVISION	BY	DATE
1	ADDED - 3	FSJ	6-29-90

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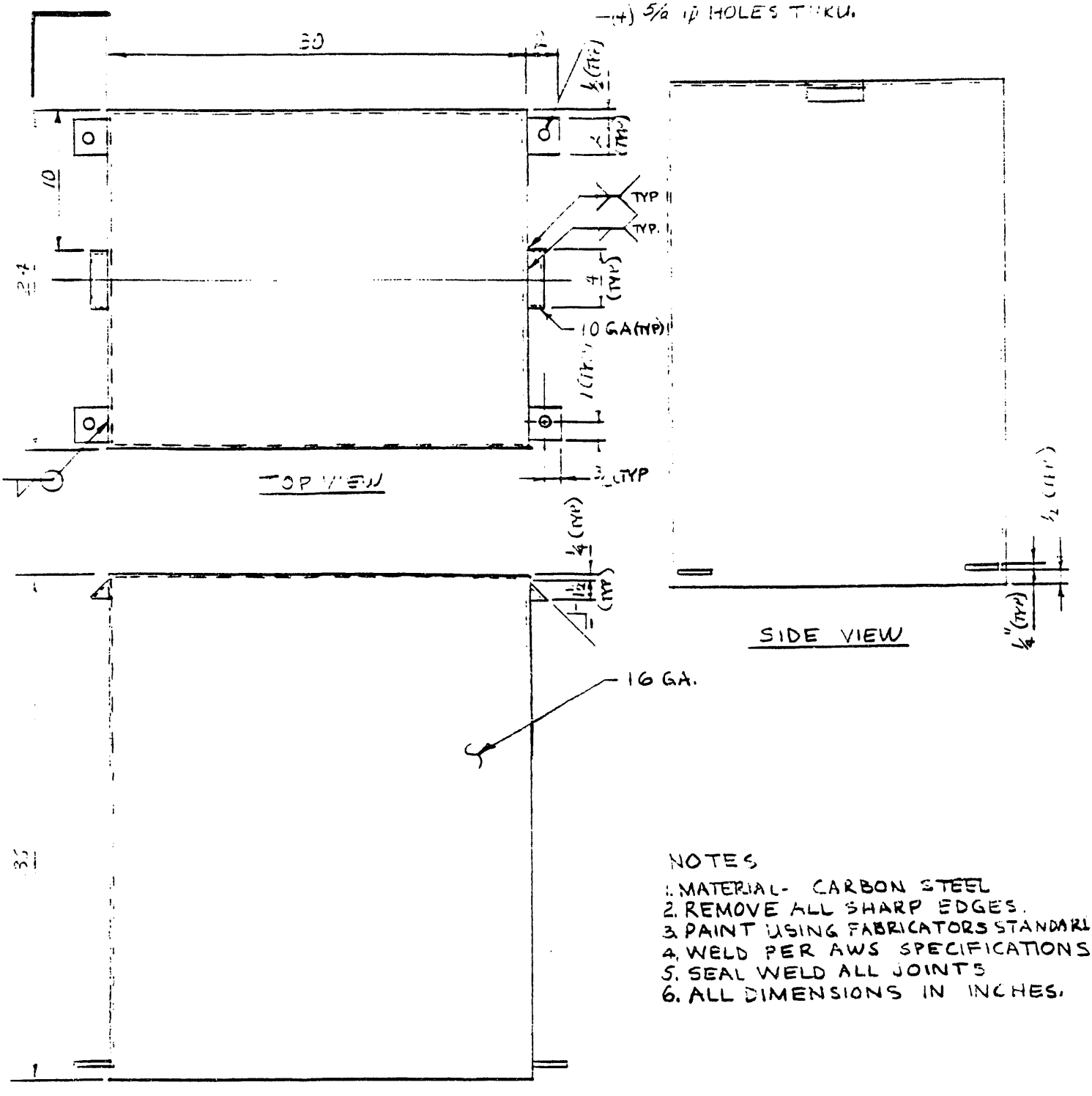
HT. HP ESA
HV PARTS

DRN. F.S.J.... DATE 6-21-90 SCALE: 3/4
CH'K .....
APP.....

CES-577-35-L



NOTES

1. MATERIAL- CARBON STEEL
2. REMOVE ALL SHARP EDGES.
3. PAINT USING FABRICATORS STANDARD
4. WELD PER AWS SPECIFICATIONS
5. SEAL WELD ALL JOINTS
6. ALL DIMENSIONS IN INCHES.

POWER SUPPLY COVER
CES 577-36-L1

NO.	REVISION	BY	DATE

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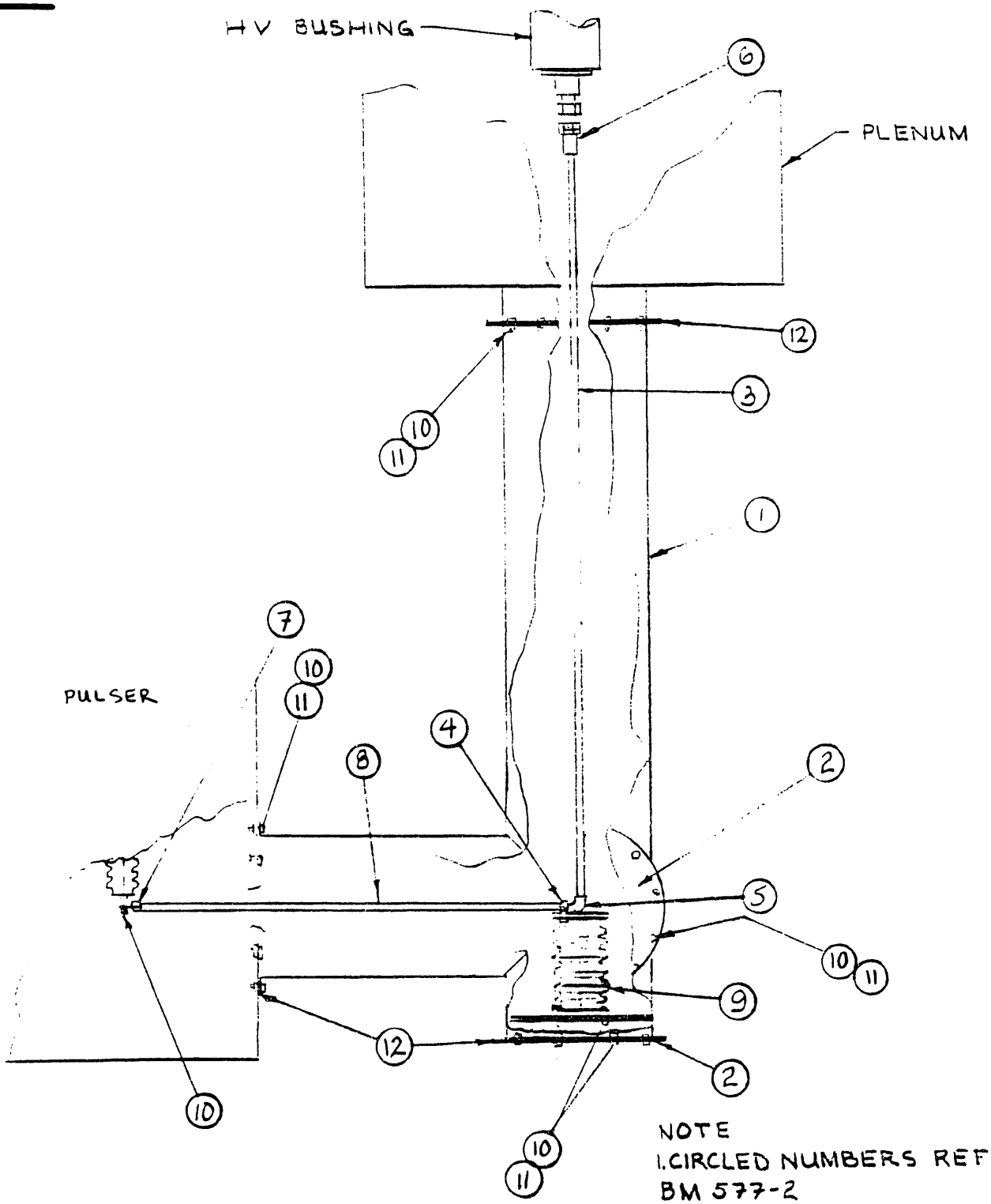
H.T. - H.P. ESA
POWER SUPPLY COVER

DRN. F.S.J.
CH'K .....
APP. .....
DATE 10-26-90
SCALE: ℞
CES-577-36-L



NOTE
1. CIRCLED NUMBERS REFER TO BM 577-2

NO.	REVISION	BY	DATE

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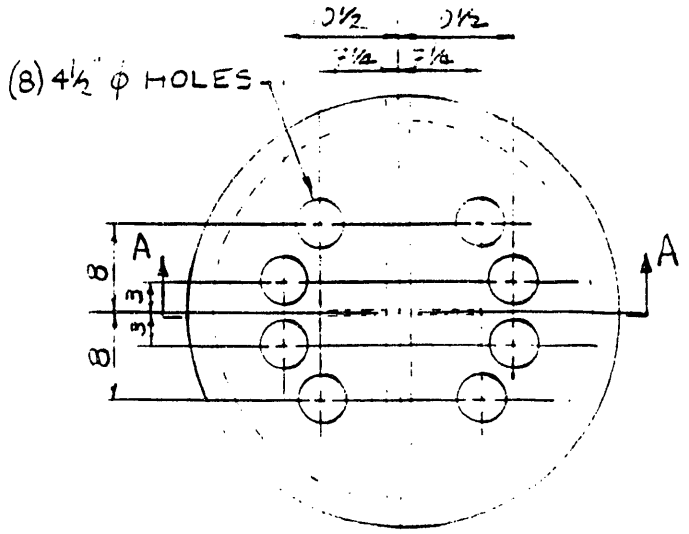
HT-HP ESA
HV CONDUCTOR ASSEMBLY

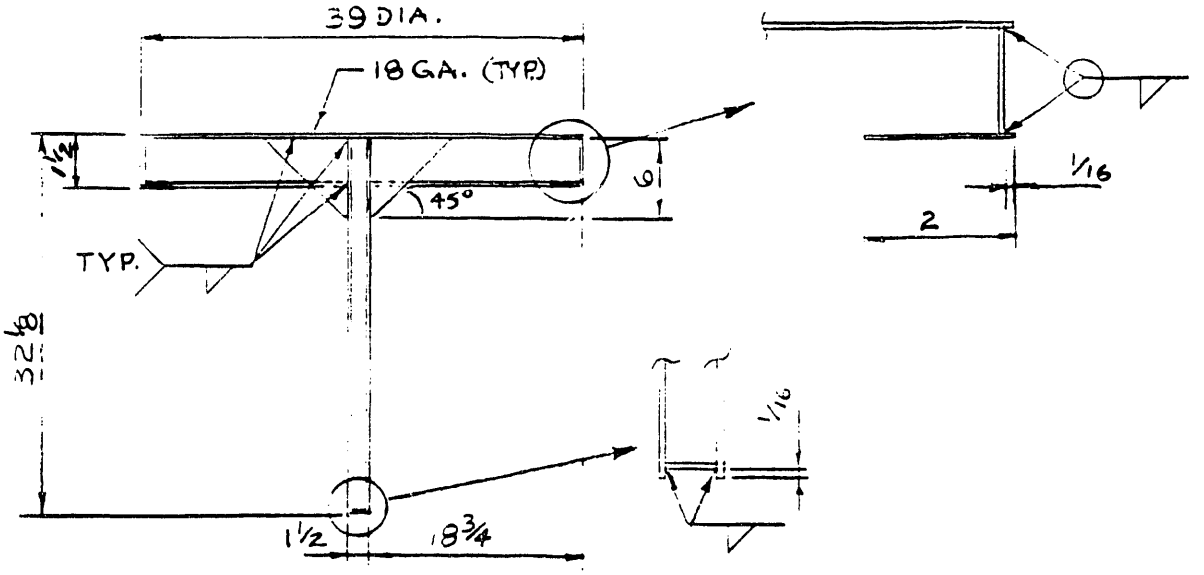
DRN. F.S.J.
CH'K .....
APP. .....

DATE 12-5-90

SCALE: NONE

CES-577-38-L





SECTION A-A

GUIDE AND BAFFLE
CES-577-39-L1

NOTES

1. MATERIAL - TYPE 316 STAINLESS STEEL
2. BREAK ALL EDGES
3. ALL DIMENSIONS IN INCHES
4. NO PAINT

NO.	REVISION	BY	DATE

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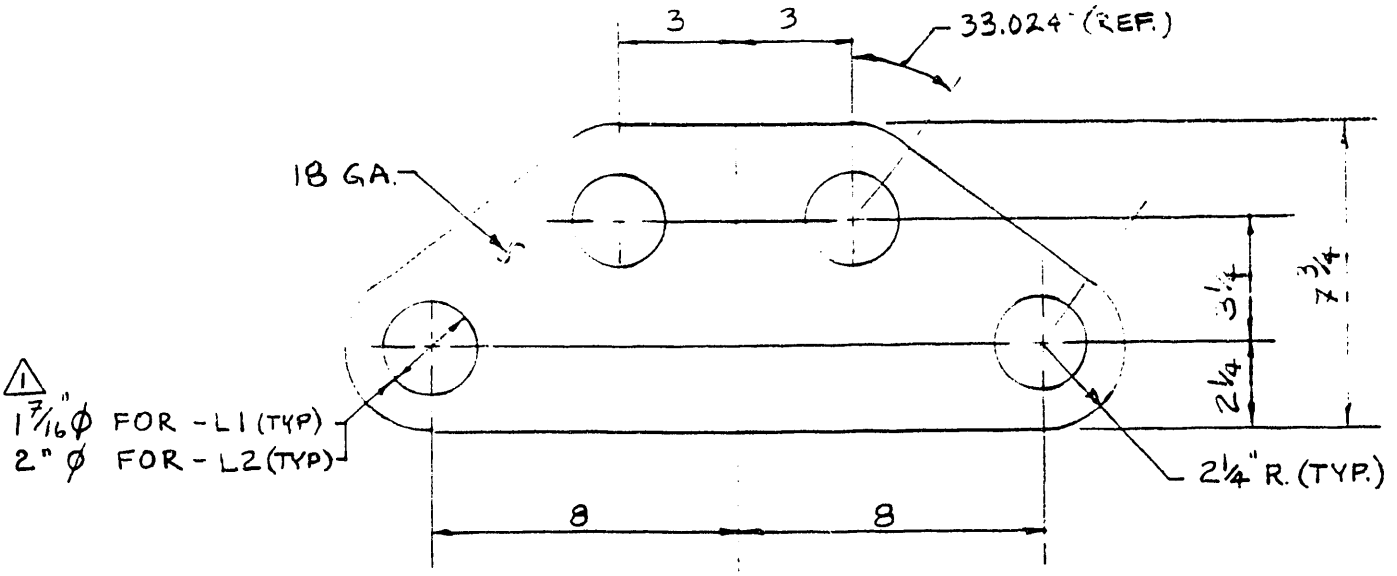
HT-HP ESA
GUIDE AND BAFFLE

DRN. C.S.J.	DATE 7-3-90	SCALE: ½
CH'K		
APP.		CES-577-39-L



D.E. GUIDE PLATE
CES-577-40-L1

1 D.E. GUIDE PLATE
CES-577-40-L2

NOTES
1. MATERIAL - TYPE 316 STAINLESS STEEL
2. ALL DIMENSIONS IN INCHES
3. BREAK ALL EDGES
4. NO PAINT

NO.	REVISION	BY	DATE
1	ADDED: L2, L1 QN. W.(2); HOLE DIM.	FSJ	7-18-90

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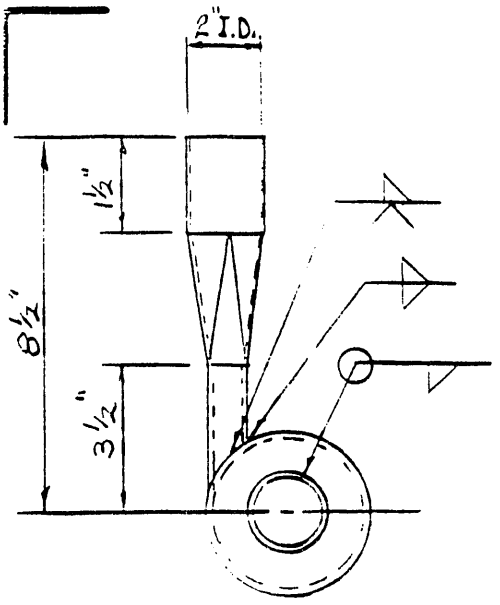
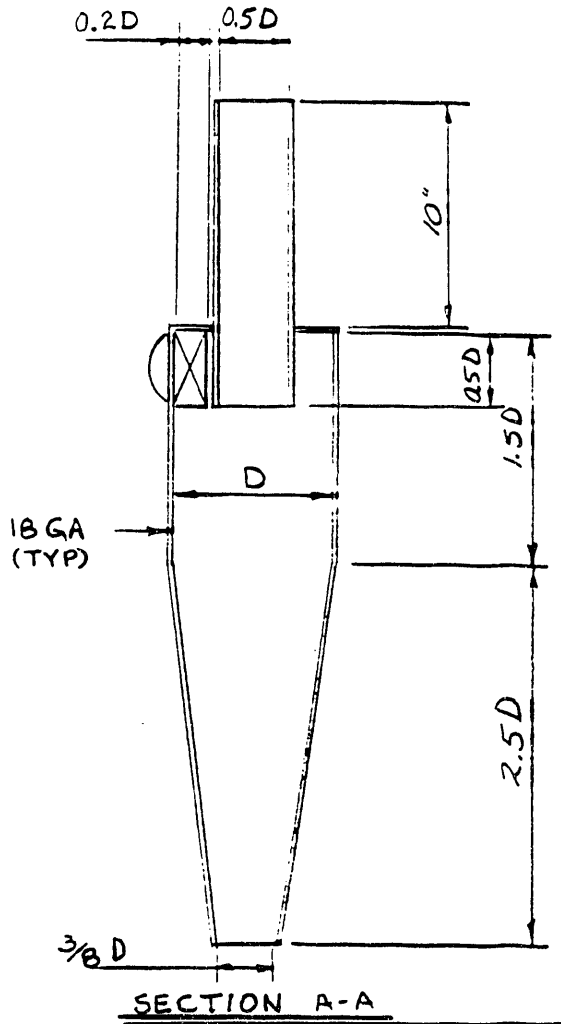
HT-HP ESA
DE GUIDE PLATE

DRN. F.S.J.. DATE 7-18-90 SCALE: ½
CH'K .....
APP.....

CES-577-40-L



	DIMENSION "D"
CYCLONE CES-577-41-L1	3.19"
CYCLONE CES-577-41-L2	3.93"
CYCLONE CES-577-41-L3	4.72"



SECTION A-A

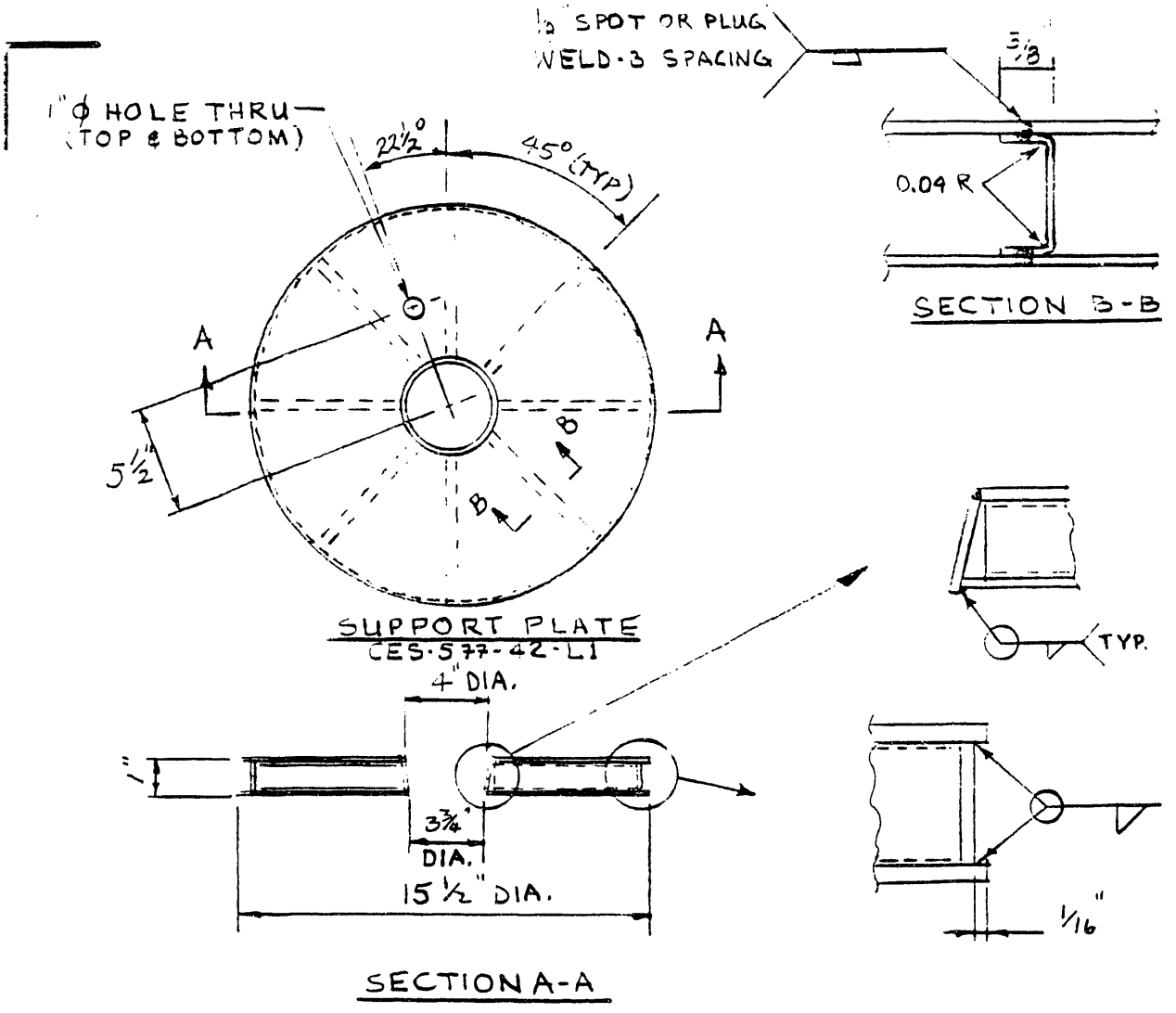
NOTES
1. MATERIAL - TYPE 316 SS
2. DIMENSIONS INVOLVING "D" MUST BE HELD TO ± 0.03"
3. MATERIAL THICKNESS MAY BE CHANGED TO 16 GA OR 20 GA IF NEEDED FOR EASE OF FABRICATION.
4. REMOVE ALL SHARP EDGES.
5. ALL WELDS MUST SEAL AND INTERIOR MUST BE CLEAN AND SMOOTH.
6. NO PAINT

NO.	REVISION	BY	DATE

R-C Environmental Services & Technologies
PO Box 1500 Somerville New Jersey 08876

HT-HP ESA CYCLONES

DRN. F.S.J.	DATE 7-18-90	SCALE: ¾
CH'K	"	CES-577-41-L
APP.	"	



NOTES

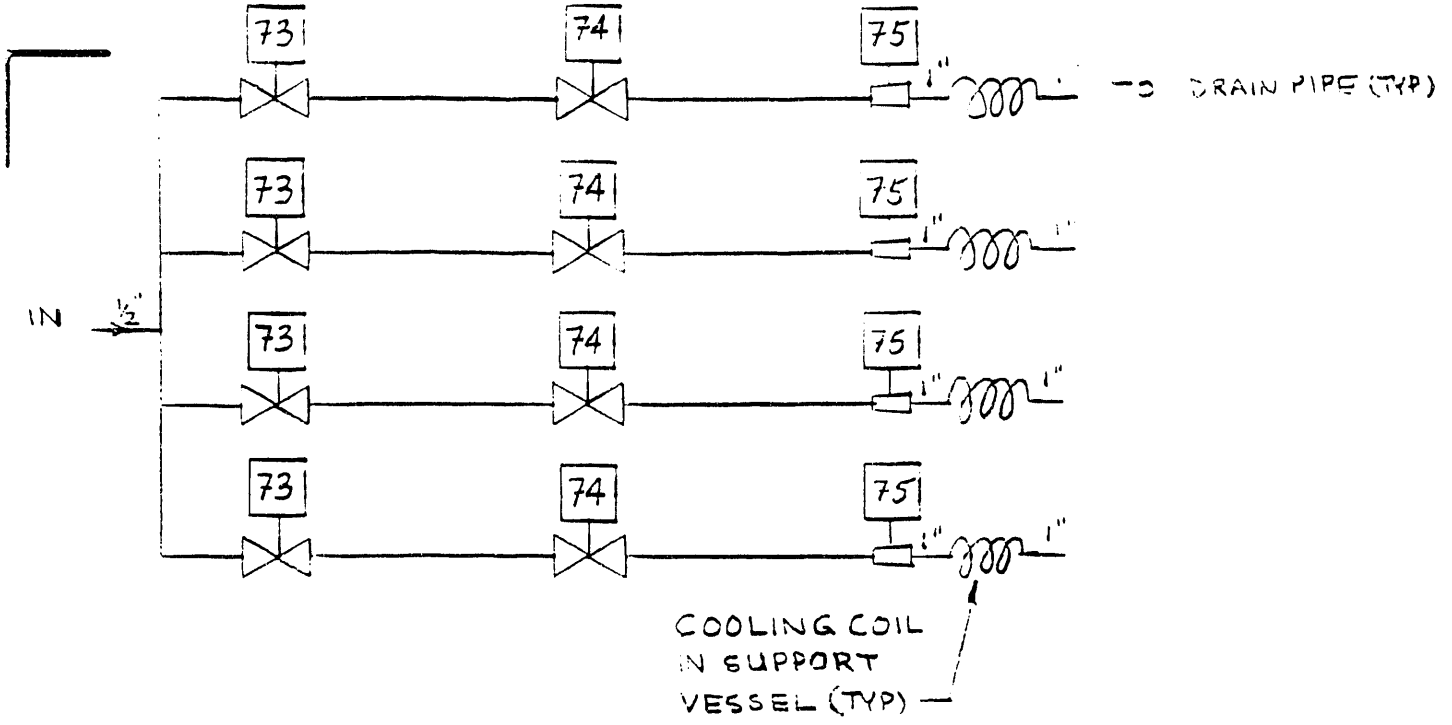
1. MATERIAL 18 GA. TYPE 316 S.S.
2. REMOVE ALL SHARP EDGES.
3. NO PAINT

NO.	REVISION	BY	DATE

R-C Environmental Services & Technologies
P.O. Box 1500 Somerville New Jersey 08876

HT-HP ESA
SUPPORT PLATE

DRN. F.S.W.	DATE 7/20/90	SCALE: 3/8
CH'K	.....	
APP.	.....	CES-577-42-L



HV BUSHING COOLING WATER
SCHEMATIC

NOTE
1. NUMBERS IN SQUARES ARE ITEMS IN
BM 577-1.

NO.	REVISION	BY	DATE

R-C Environmental Services & Technologies
P.O. Box 1500 Somerville New Jersey 08876

HT-HP ESA
HV BUSHING COOLING WATER SCHEMATIC

DRN. F.S.J.
CH'K .....
APP. .....
DATE 7-23-90
SCALE: NONE
CES-577-43-L

Research-Cottrell

BILL OF MATERIAL NO. 577-1

PAGE 1 OF 6

FOR HT-HP Gas Cleanup Lab System

REFERENCE DRAWINGS

G. O. NO.	APPROVED FOR PURCHASE		DATE	QUANTITY FOR THIS G.O. MULTIPLY BY
CES-577			10-26-88	

ITEM NO.	DESCRIPTION OF PARTS	NO. PCS.	Spares	REQ'D. MAT.	ISSUED MAT.	PRICE PER	AM'T.
1	Discharge Charging Electrode, CES577-2-B-1	4					
2	Discharge Agglomerating Electrode, CES577-2-B-9	4					
3	Grounded electrode, CES577-2-B-2	8					
4	Discharge Electrode Guide Plate, CES577-2-B-6	2					
5	G.E. Tube Sheet Assembly, CES577-2-B-4	1					
6	Tube Sheet Segment, CES577-2-B-7	2					
7	Tube Sheet Center, CES 577-2-B-8	1					
8	DE Support Beam, CES577-2-B-3	1					
9	G.E. Guide Plate, CES 577-2-B-5	2					
10	Baffle Top, CES 577-3-C-2	1					
11	Baffle, Bottom, CES577-3-C-3	1					
12	High Voltage Bushing, CES577-3-C-1	2	1				
13	Vessel-Bottom Section, CES577-4-B-1	1					
14	Vessel-Center Section, CES577-4-B-2	1					
15	Vessel-Bottom Head, CES577-4-B-3	1					
16	Vessel, Top Section, CES577-5-B-1	1					
17	Vessel-Top Head, CES 577-5-B-2	1					
18	Support Vessel, CES577-6-B-1	2					
19	Top Head, CES577-6-B-2	2					

MADE BY FJS DATE

CHKD BY CG DATE 7.12.89

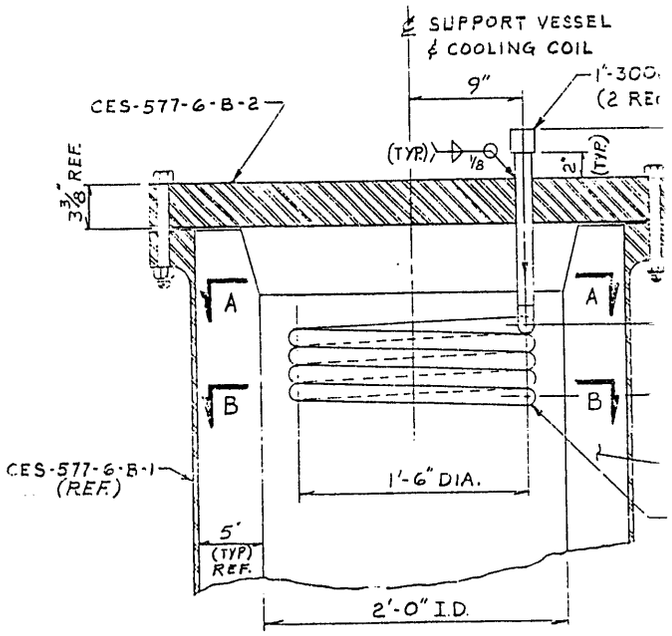
APVD BY DATE 8.2.89

REV. NO.

B.M.

C233 Rev. 2/82

[CES-577-13-C]



SUPPORT VESSEL UPPER COOLING C

ASSEMBLY

SCALE: 1/5" = 1"

BRUNING 40-107 49618

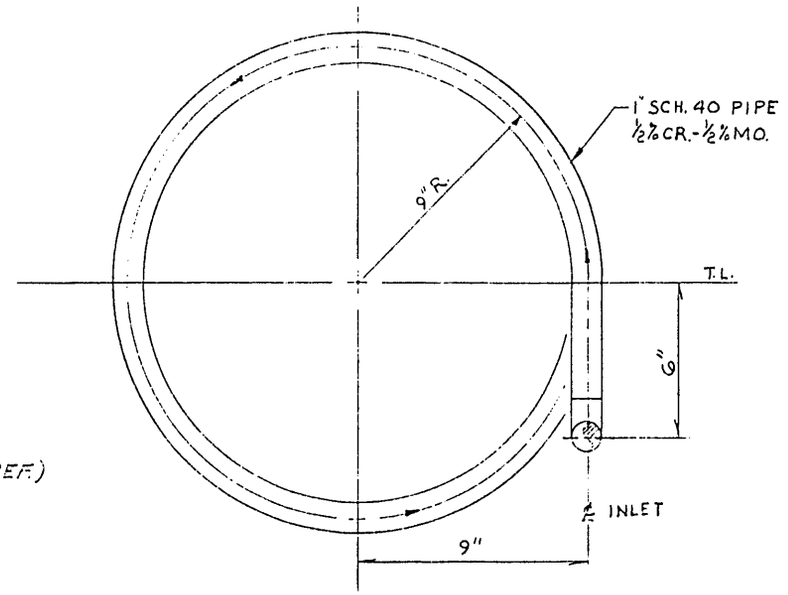
*COUPLING
'D.)

1'-3"

5 5/16" APPROX. (4 COILS)

REFRACTORY (REF.)

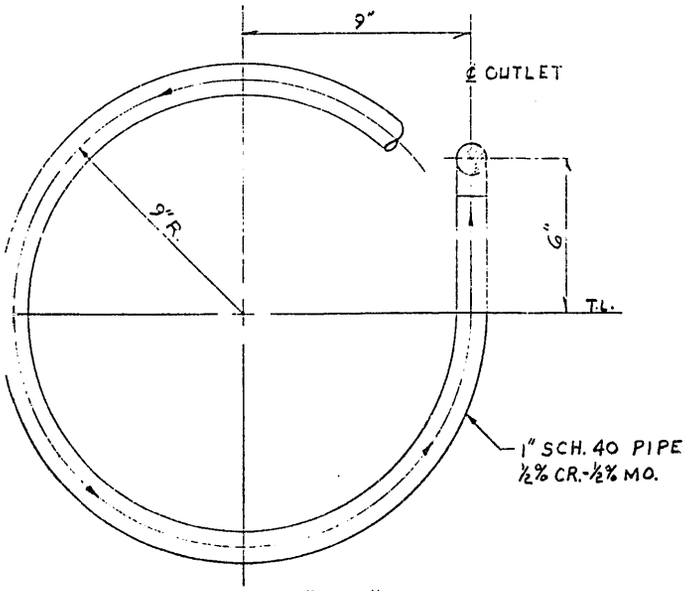
CES-577-13-C-1



SECTION "A-A"

SCALE: ¼" = 1"

)IL



SECTION "B-B"

SCALE: ¼" = 1"

NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE

Research-Cottrell

Experienced Environmental People

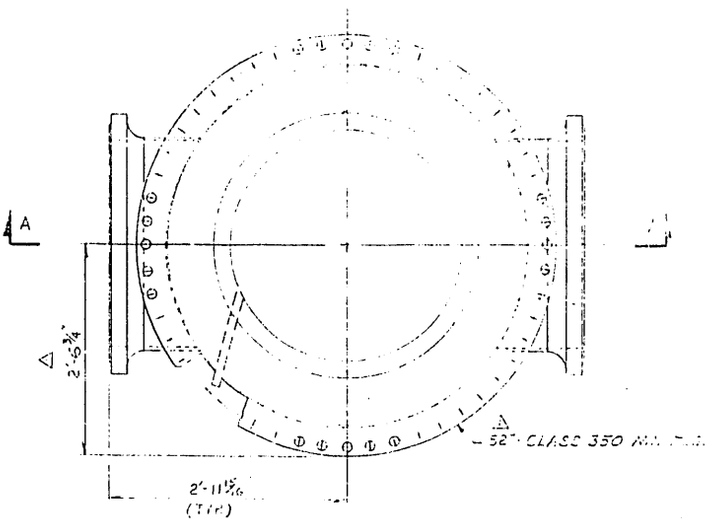
P.O. Box 1500 Somerville New Jersey 08876

SUPPORT VESSEL UPPER COOLING COIL ASSEMBLY

HT-HP ES AGGLOMERATOR

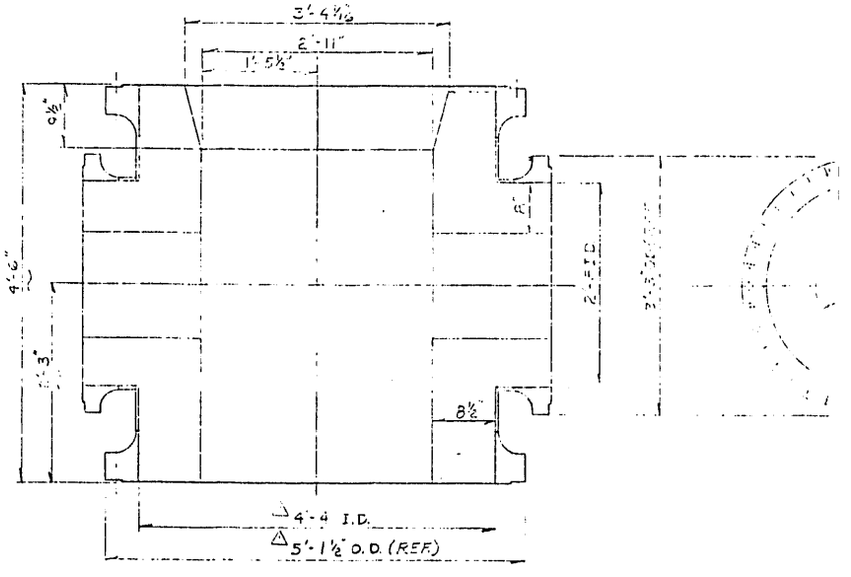
DRAWN DLJ	DATE 6-17-89	SCALE: AS NOTED
CHECKD ES J	" 6-26-89	CES-577-13-C
APPRVD	"	
APPRVD	"	

CES-577-16-B

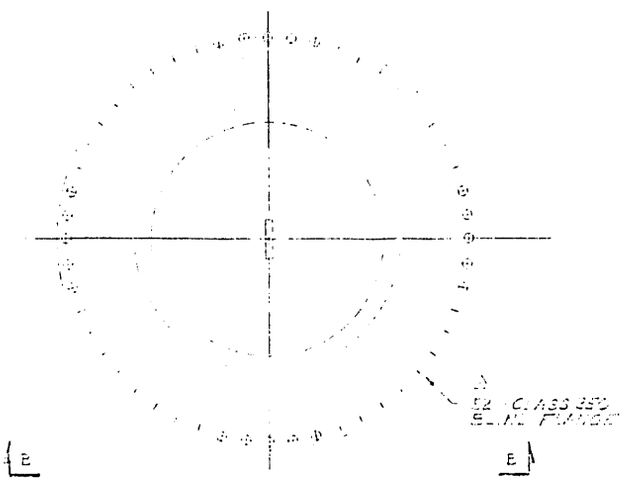


TOP SECTION
(REF'D) SCALE: 1"=1'-0"

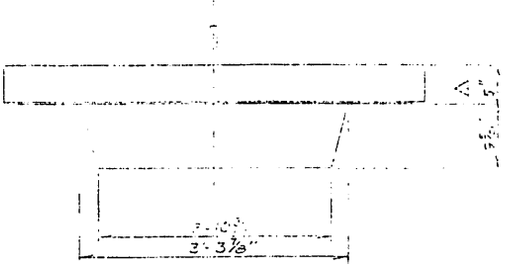
CES-577-16-B-1



SECTION "A-A"
SCALE: 1"=1'-0"



TOP HEAD
(1 REQ'D) SCALE: 1"=1'-0"
CES-577-16-B-2



SECTION "B-B"
SCALE: 1"=1'-0"

NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE
												1	5½" I.D. 5-152 W.S. 3/16" THK 5 W.S. 152 I.D. SA 240 304L	FSJ	9/15/89

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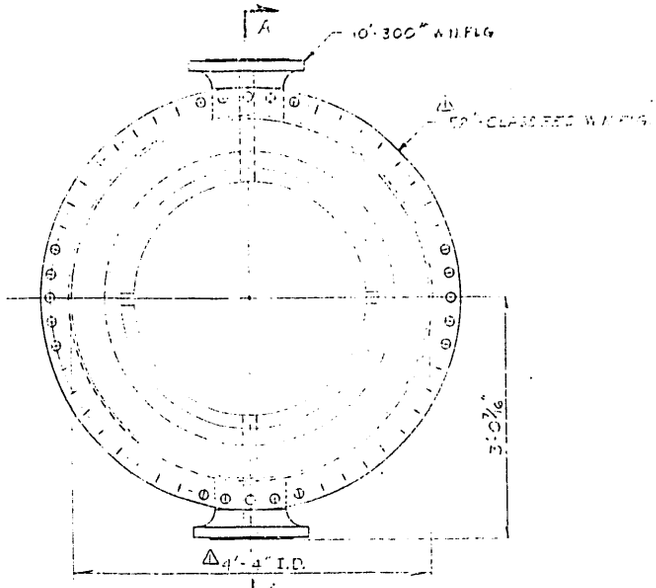
VESSEL REFRACTORY

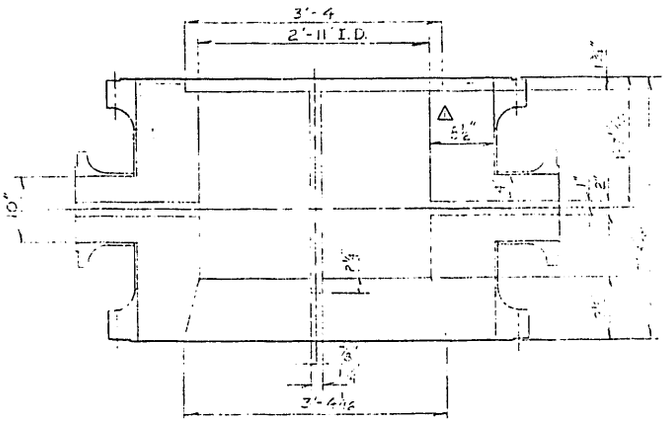
HT-HP ES AGGLOMERATOR

DRAWN	DN	DATE 5-16-88	SCALE AS NOTED
CHECKED	FSJ	" 6-26-89	
APPRVD		"	CES-577-16-B
APPRVD			

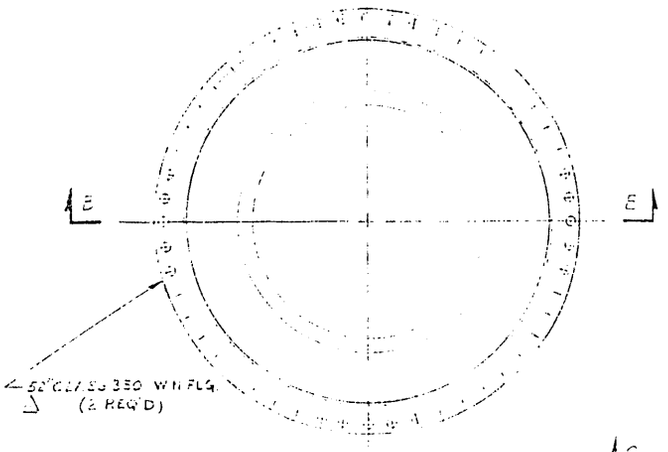
CES-577-15-E



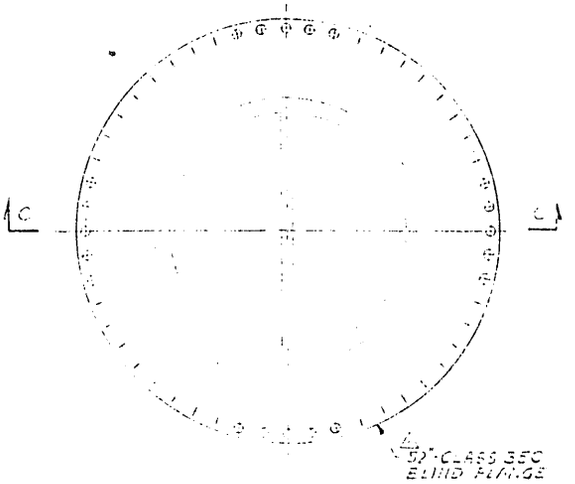
BOTTOM SECTION
(1 REQ'D.) SCALE 1"=1'-0
CES-577-15-B-1



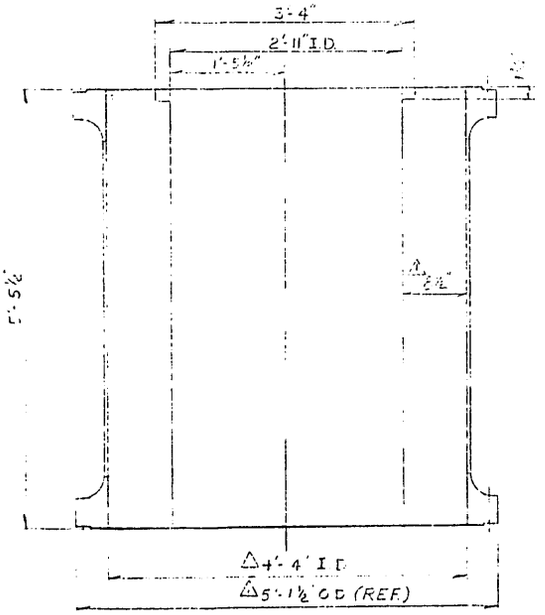
SECTION "A-A"



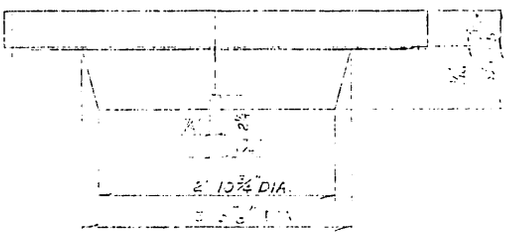
CENTER SECTION
(1 REQ'D) SCALE: 1" = 1'-0"
CES-577-15-B-2



BOTTOM HEAD
(1 REQ'D) SCALE: 1" = 1'-0"
CES-577-15-B-3



SECTION "B-E"



SECTION "C-C"

NO	REVISION	BY	DATE
1	[illegible]	FSJ	9/25/95

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VESSEL REFRACTORY

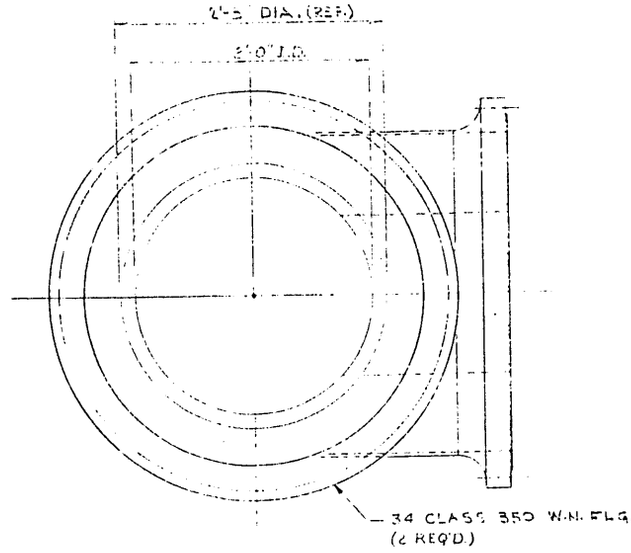
HT-HP ES AGGLOMERATOR

DRAWN	VW	DATE	3-15-89
CHECKED	FSJ		6-26-89
APPRVD			
APPRVD			

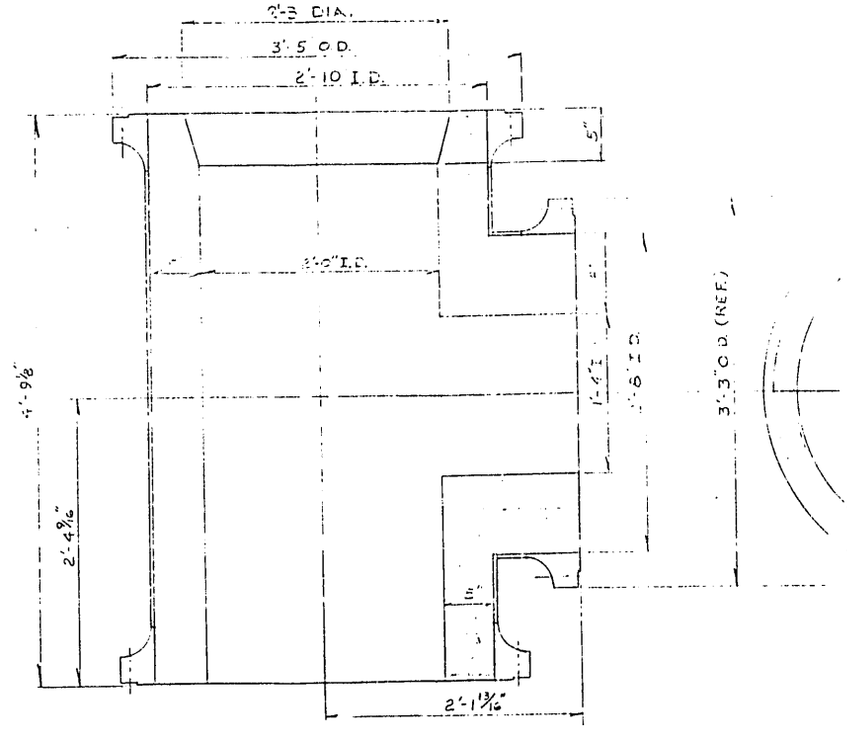
SCALE: AS-NOTED

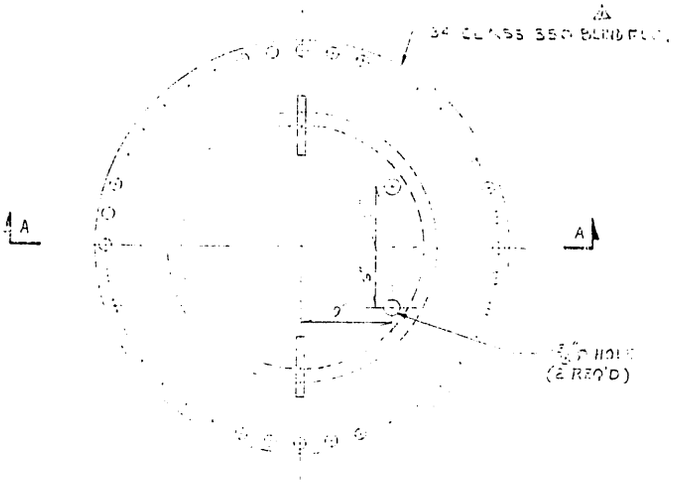
CES-577-15-B

CES-577-14-5

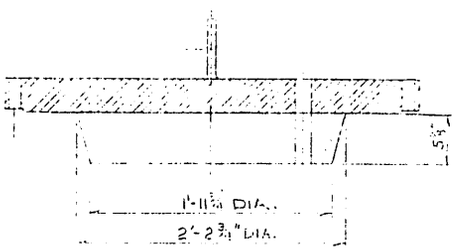


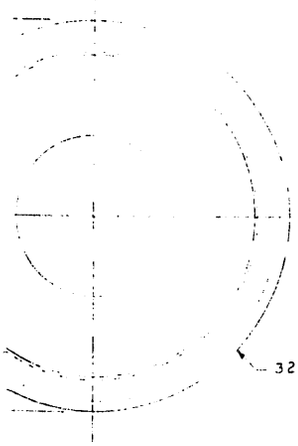
SUPPORT VESSEL
(2 REQ'D) SCALE 1/2" = 1'-0
CES-577-14-E-1





TOP HEAD
(2 REQ'D) SCALE: 1½"=1'-0"
SES 577-M-B-2





NO	REVISION	BY	DATE
1	BLIND W. W.N.	431-90	FSJ

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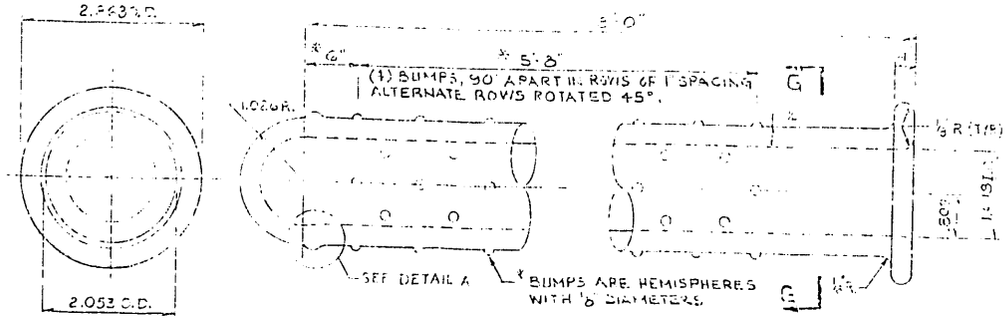
SUPPORT VESSEL REFRACTORY
HT-HP ES AGGLOMERATOR

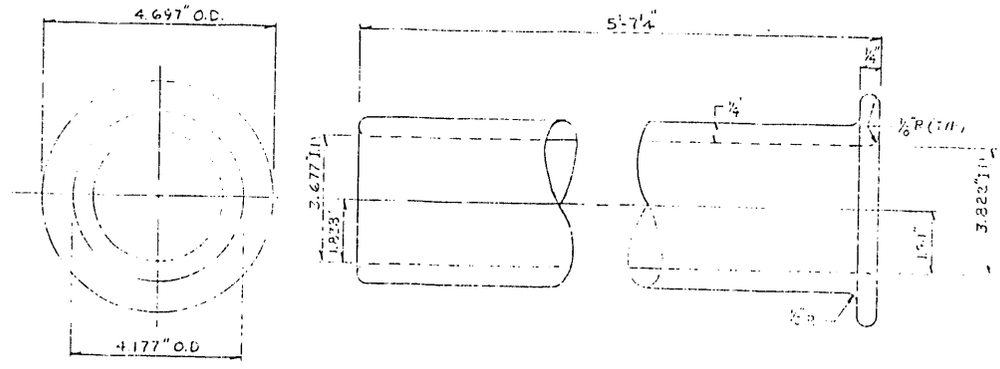
DRAWN	DW	DATE 8-17-88	SCALE AS NOTED
CHECKED	FSJ	" 6-29-89	
APPRVD		"	CES-577-14-B
APPRVD		"	

CES-577-2-B



* CHARGING ELECTRODE CES-577-2-B-1 ((4) REQ'D) AS NOTED *

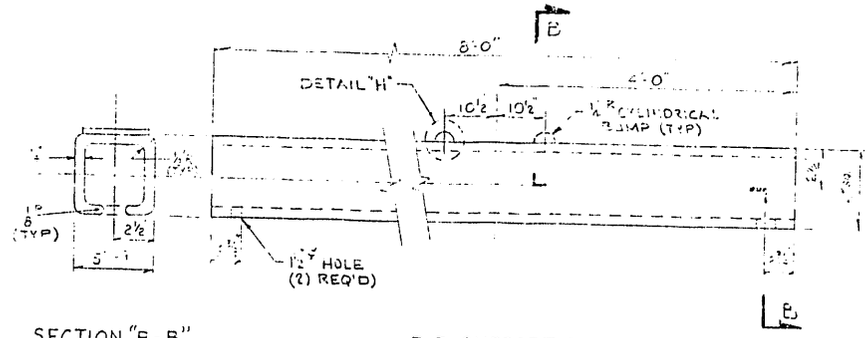
AGGLOMERATING ELECTRODE CES-577-2-B-9 ((1) REQ'D)



GROUNDED ELECTRODE

(8 REQ'D.)

CES-577-2-B-2

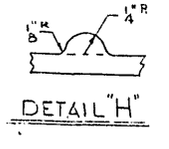


SECTION "B-B"

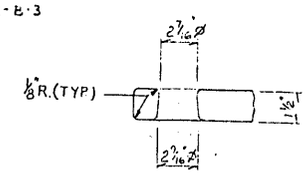
D.E. SUPPORT BEAM

(1 REQ'D.)

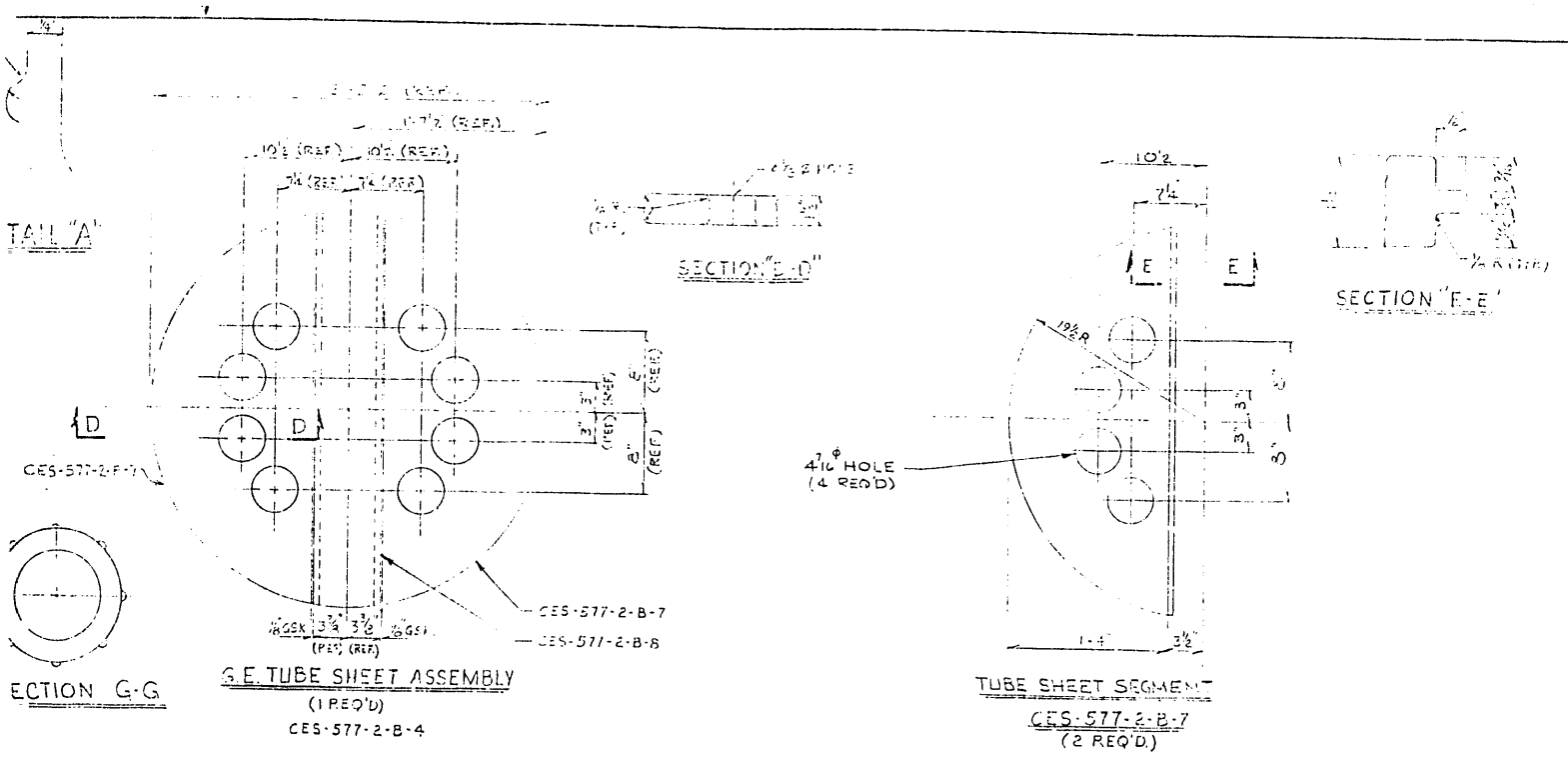
CES-577-2-B-3



DETAIL "H"

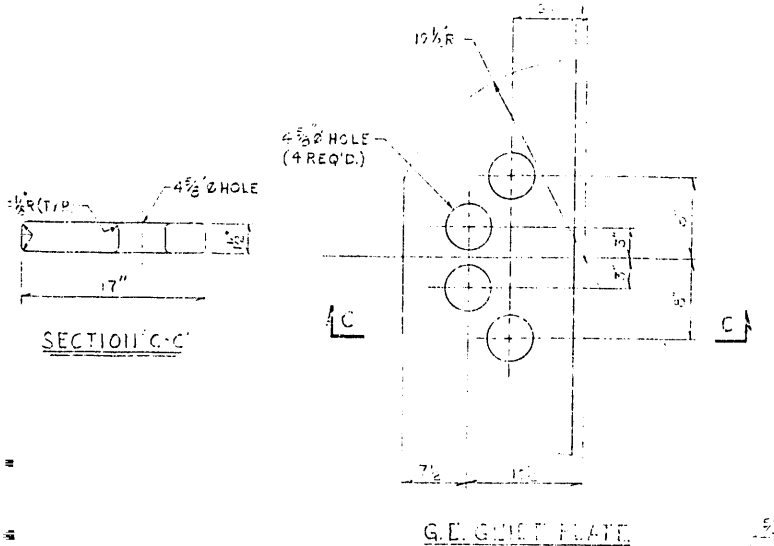


SECTION "A-A"

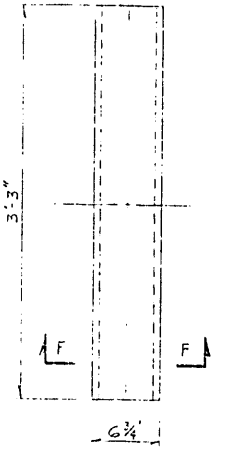


G.E. TUBE SHEET ASSEMBLY
(1 REQ'D)
CES-577-2-B-4

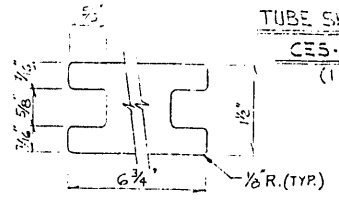
TUBE SHEET SEGMENT
CES-577-2-B-7
(2 REQ'D.)



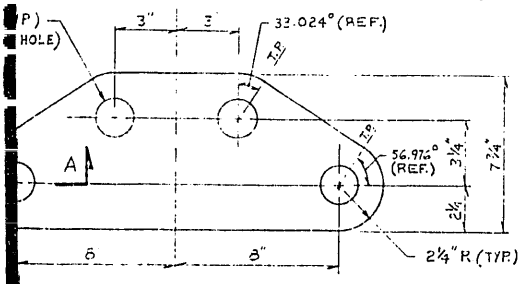
G.E. GUIDE PLATE
(2 REQ'D.)
CES-577-2-B-5



TUBE SHEET CENTER
CES-577-2-B-8
(1 REQ'D)



NOTES:
1. ALL MATERIAL SHALL BE A STRUCTUAL GRADE SILICON CARBIDE.



D.E. GUIDE PLATE
(2 REQ'D.)
CES-577-2-B-6

NO	REVISION	BY	DATE
1	REVISED: DIM'S C.E. GUIDE R. ADDED: PARTS -7 & -8, DELETED: D.E. SUPPORT PLATE	TJV	7-21-88

Research-Cottrell
P.O. Box 1500 Somerville New Jersey 08876

CERAMIC INTERNALS

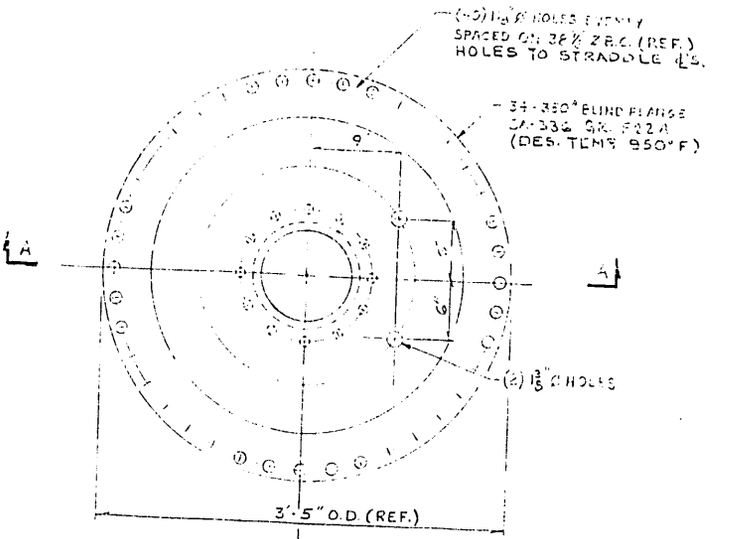
HT-HP ES AGGLOMERATOR

DRAWN	[illegible]	DATE	7-6-88
CHECKD	FSJ	"	6-26-89
APPRVD		"	
APPRVD		"	

SCALE: NONE

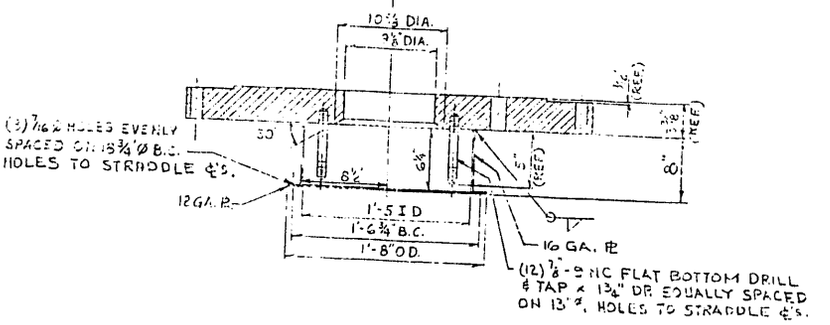
CES-577-2-B

CES-577-8-3



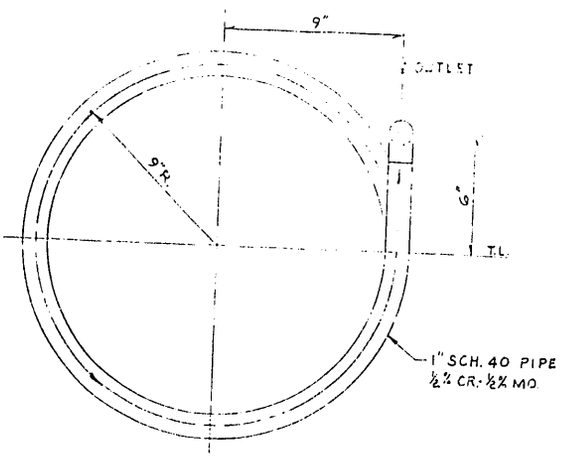
SUPPORT VESSEL BOTTOM HEAD

(2 REQ'D) SCALE: 1/2" = 1"
CES-577-8-3-1



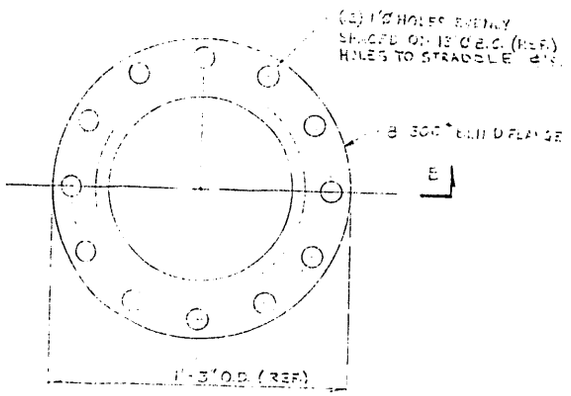
SECTION "A-A"

SCALE: 1/2" = 1"

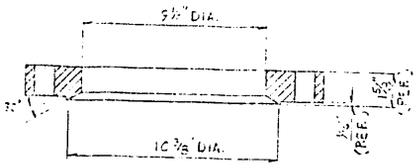


SECTION "D-D"

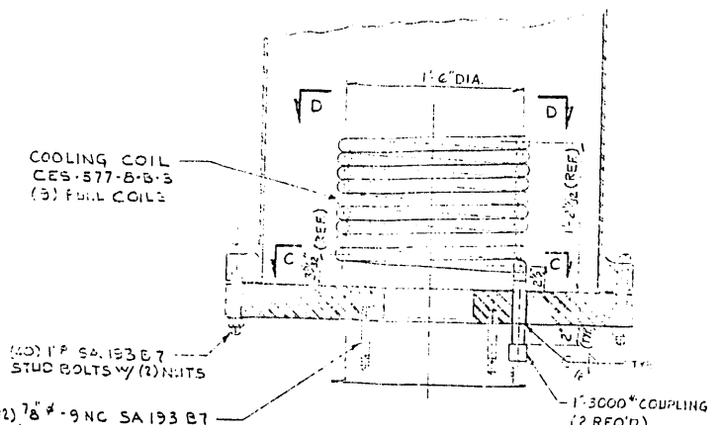
SCALE: 1/4" = 1"



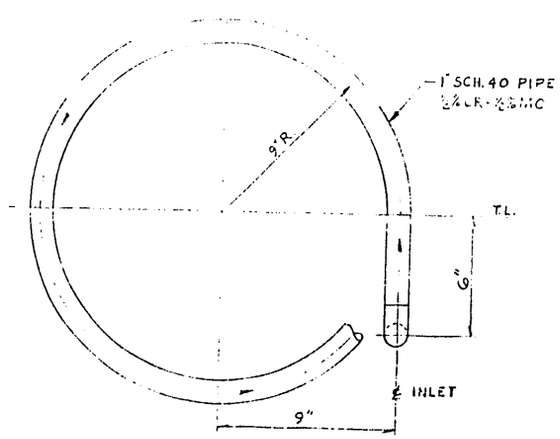
INSULATOR ADAPTER RING
(2 REQ'D) SCALE: ¼" = 1"
CES-577-8-B-2



SECTION "B-B"
SCALE: ¼" = 1"



HV BUSHING COOLING COIL ASSEMBLY
SCALE: ⅛" = 1"



SECTION "C-C"
SCALE: ¼" = 1"

NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO.	REVISION	BY	DATE	NO	REVISION	BY	DATE

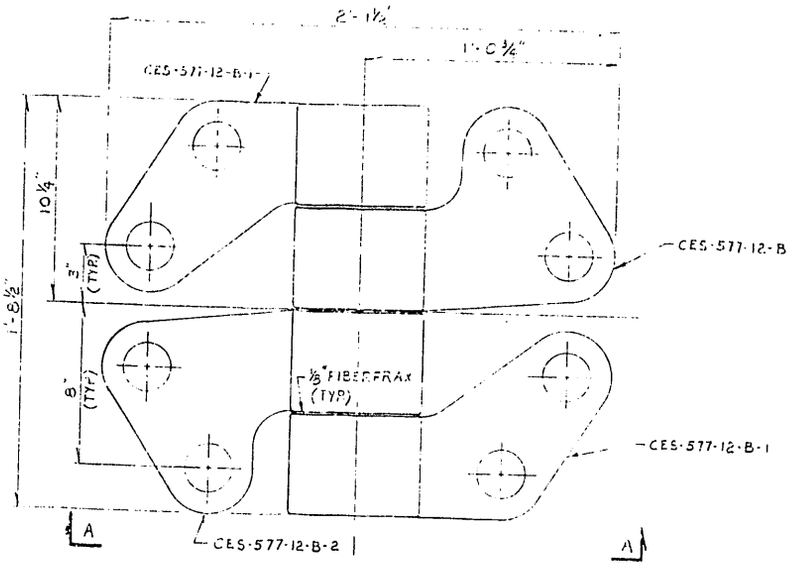
Research-Cottrell
P.O. Box 1500 Somerville New Jersey 08876

SUPPORT VESSEL BOTTOM HEAD AND COOLING COIL DETAILS

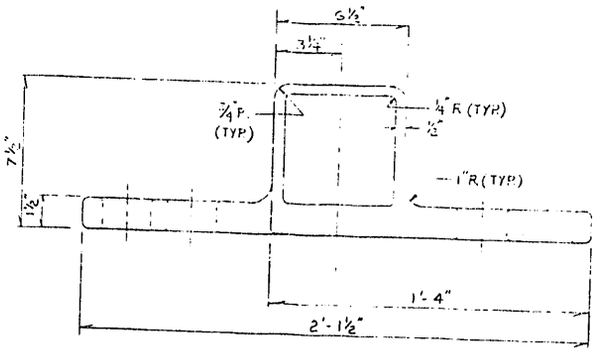
HT-HP ES AGGLOMERATOR

DRAWN		DATE 7-25-83	SCALE AS-NOTED
CHECKED	FSJ	" 6-26-89	
APPRVD		"	CES-577-8-B
APPRVD		"	

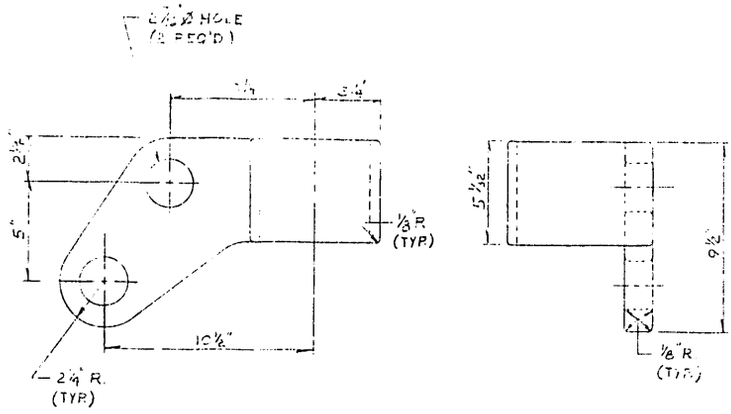
CES-577-12-B



D.E. SUPPORT PLATE ASSEMBLY

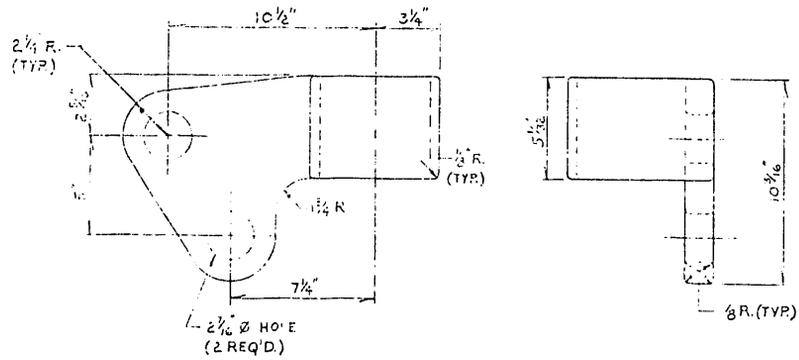


SECTION "A-A"



D.E. SUPPORT PLATE
(2 REQ'D.)
CES-577-12-B-1

NOTES:
1. MATERIAL: STRUCTURAL GRADE SILICON CARBIDE.
2. ALL EDGES TO HAVE A MINIMUM 1/8" RADIUS.



D.E. SUPPORT PLATE
(2 REQ'D.)
CES-577-12-B-2

NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE

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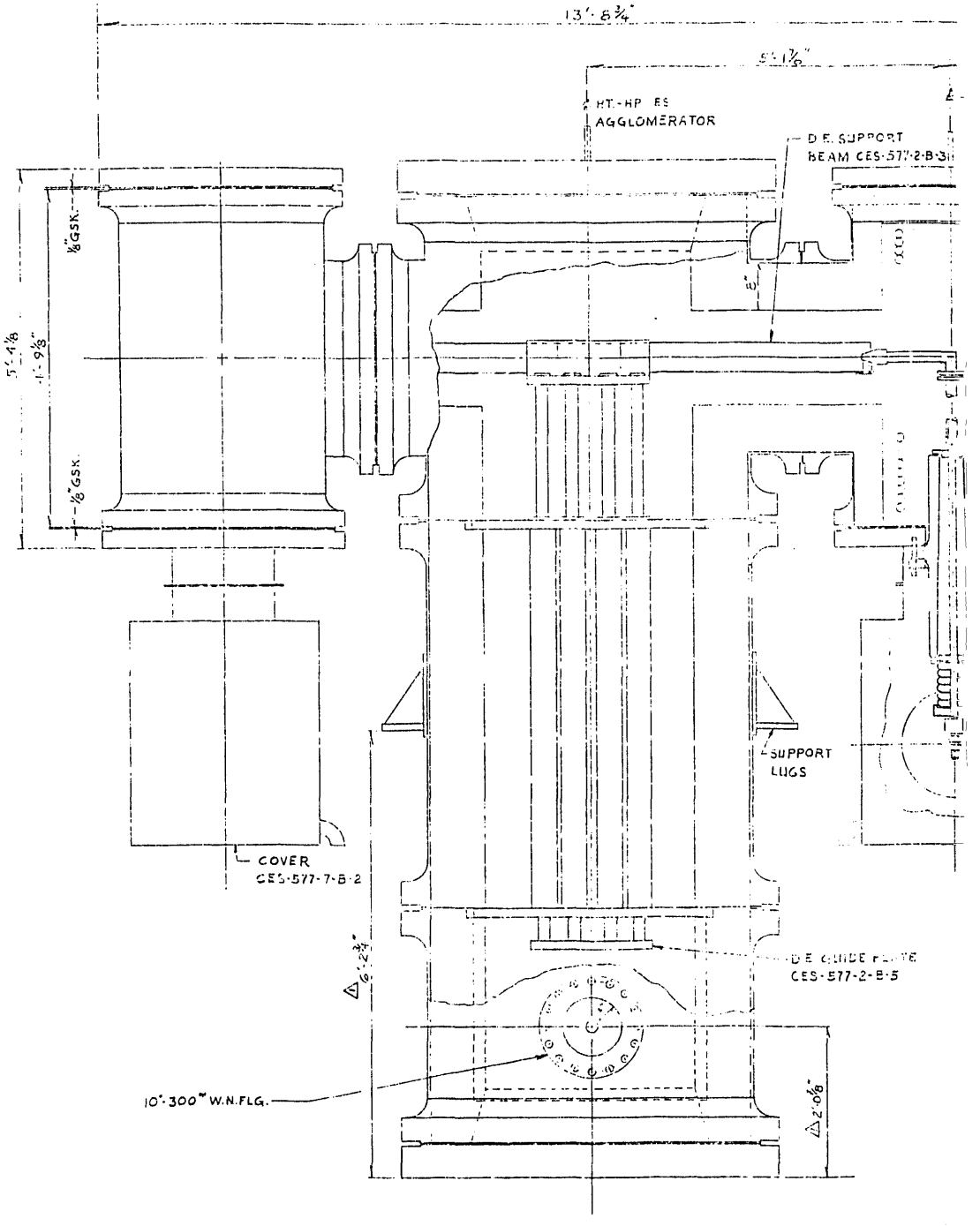
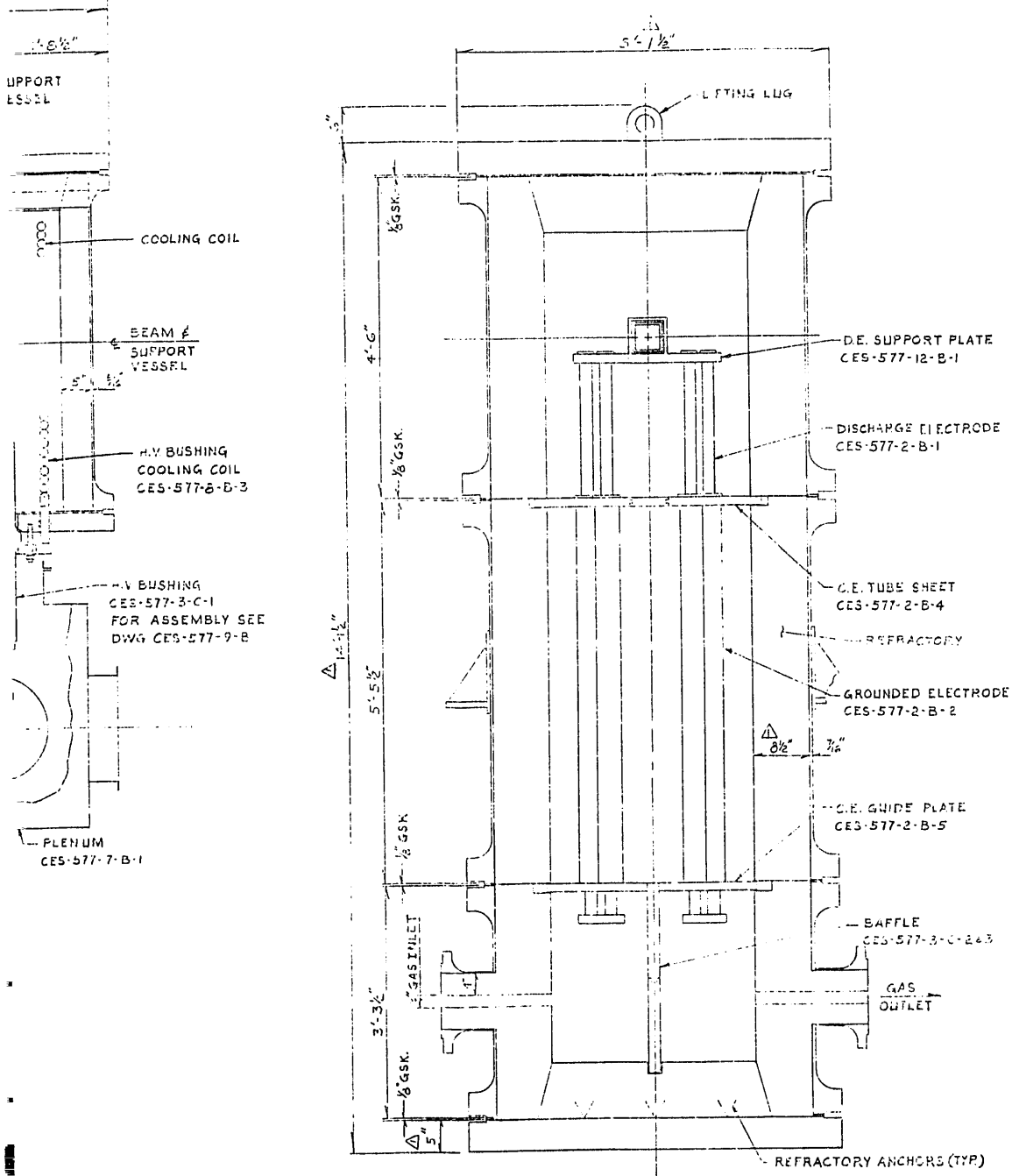
CERAMIC INTERNALS

HT-HP ES AGGLOMERATOR

DRAWN	[illegible]	DATE 6-15-88	SCALE: 1/4 = 1"
CHECKED	FSJ	" 6-26-89	
APPRVD		"	CES-577-12-B
APPRVD		"	

CES-577-1-B


13'-8¾"
HT.-HP. ES
AGGLOMERATOR
D.E. SUPPORT
BEAM CES-577-2-B-3
⅛"GSK.
5'-4⅛"
1'-9⅛"
⅛"GSK.
SUPPORT
LUGS
COVER
CES-577-7-B-2
D.E. GUIDE PLATE
CES-577-2-B-5
10"-300# W.N.FLG.



NO	REVISION	BY	DATE
1	2:0⅜ w=2:1⅝ 5½ w=3⅝ 6½ w=3½ 5" MSS HIGHWALL	FSJ	8/15/89

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ASSEMBLY

HT-HP ES AGGLOMERATOR

DRAWN	DATE 8-1-88
CHECKD	
APPRVD	
APPRVD	

SCALE: 1"=1'-0"

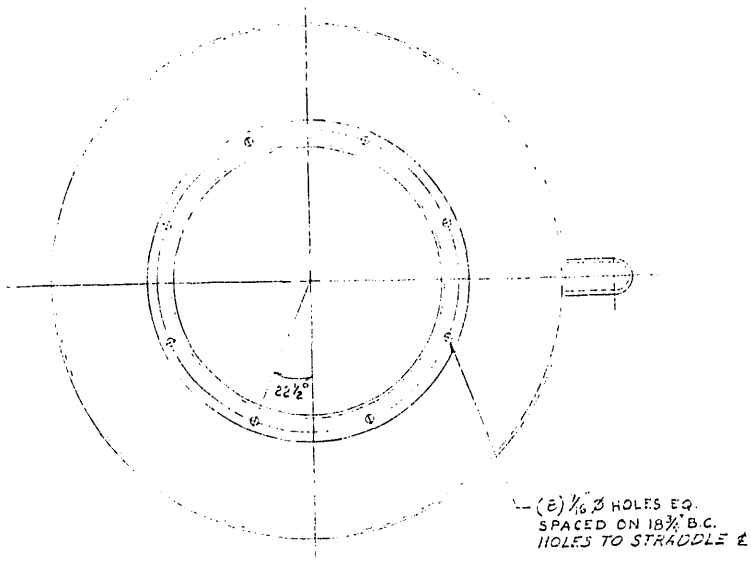
CES-577-11-B

CES-577-7-B

TOP VIEW-PLENUM

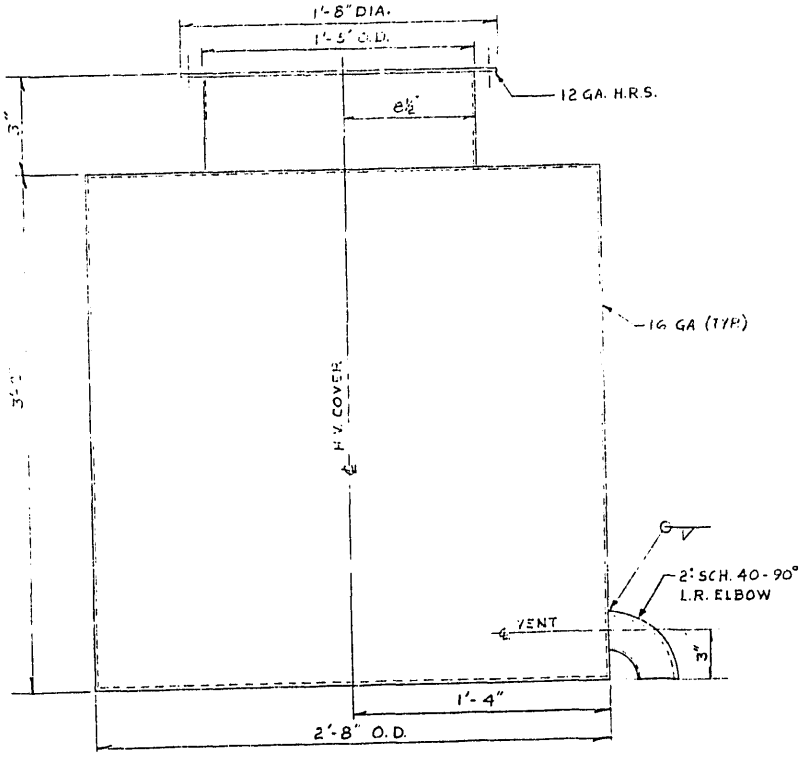
CES-577-7-B-1

ELEVATION



TOP VIEW - COVER

CES-577-7-B-2



ELEVATION

NOTES:
1. MATERIAL - CARBON STEEL
2. WELDING - A.W.S. STD. ALL SEAMS TO BE CONTINOUS WELD AND MUST BE AIR TIGHT.
3. SUPPLY (36) ⅜ X 1¼ X 1" LG. HEX. HEAD CAD. PL. BOLTS W/ NUTS & LOCKWASHERS

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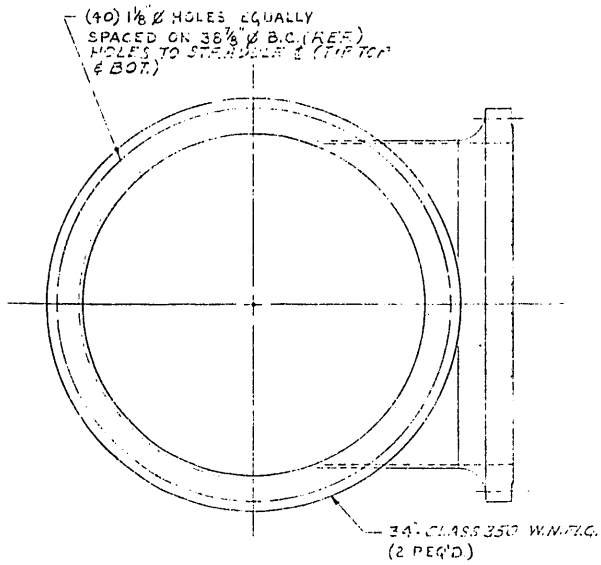
HIGH VOLTAGE PLEMUN & COVER

--HT-HP ESP AGGLOMERATOR

DRAWN JJO	DATE 7-22-88	SCALE: NONE
CHECKED F S J	" 6-2689	
APPRVD	"	CES-577-7-B
APPRVD	"	

NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE

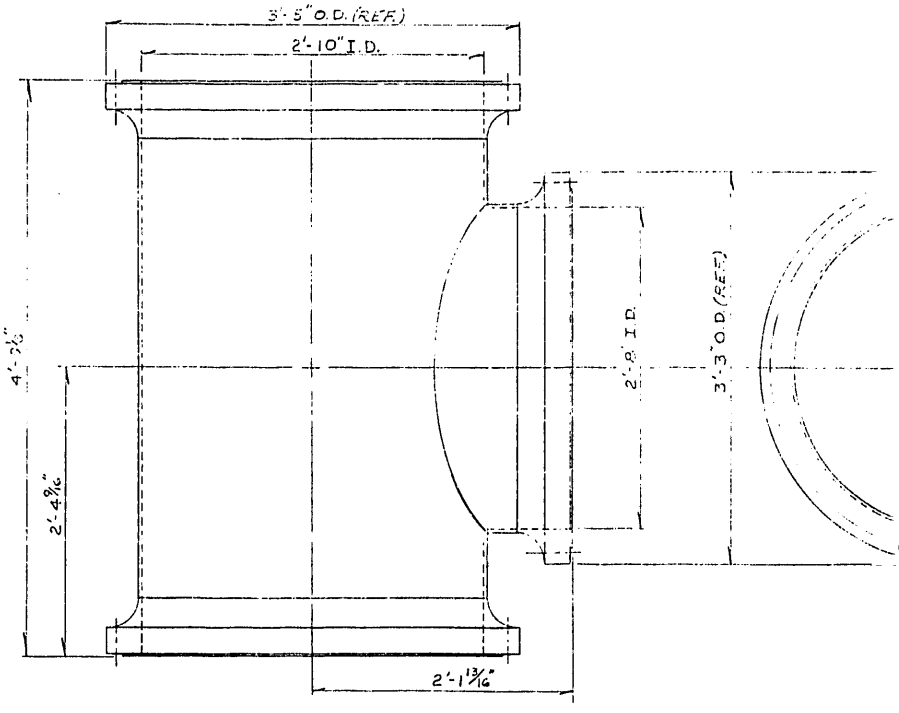
CES-577-6-8

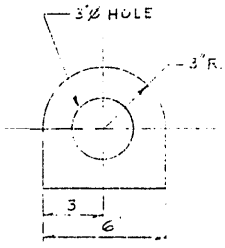


DET

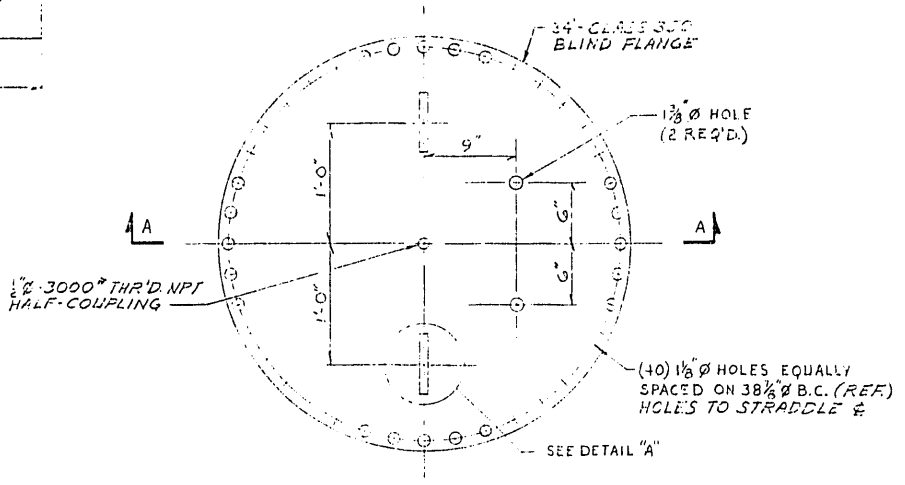
SCA
(2

SUPPORT VESSEL
(2 REQ'D.) SCALE: 1½" = 1'-0"
CES-577-6-B-1

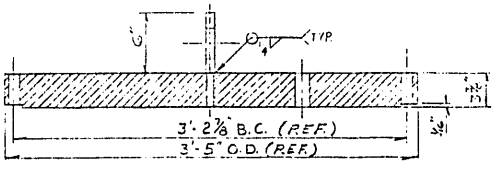




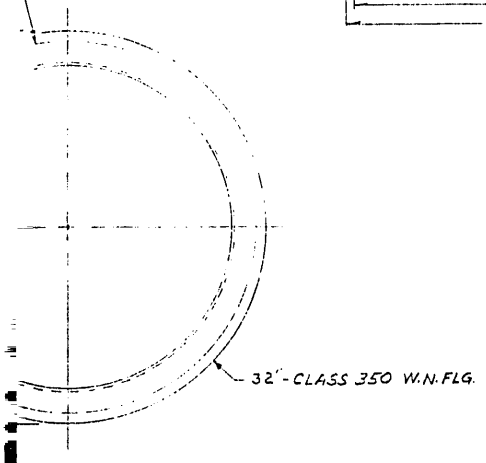
DETAIL "A"
3"=1'-0"
O.D.)



TOP HEAD
(2 REQ'D.) SCALE: 1½"=1'-0"
CES-577-6-B-2



SECTION A-A



NOTES:
1. FOR BOTTOM HEAD SEE DWG. CES-577-8-B
2. SEE VESSEL SPECIFICATION CES-577-S.P.-1

NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO.	REVISION	BY	DATE	NO.	REVISION	BY	DATE

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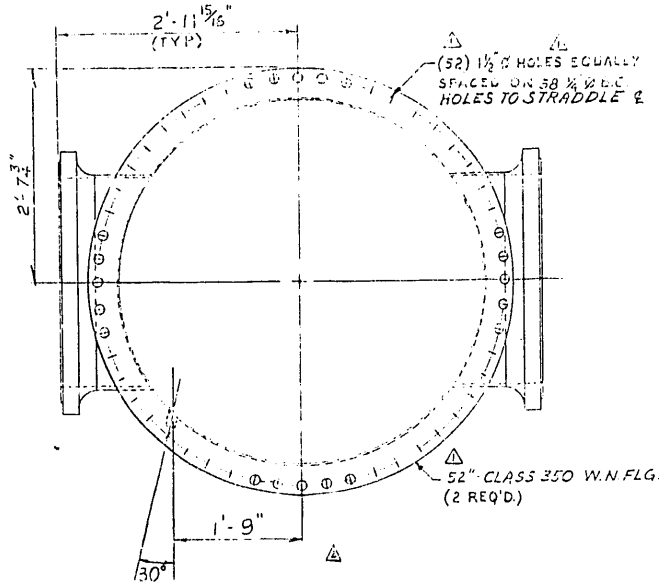
SUPPORT VESSEL
HT-HP ES AGGLOMERATOR

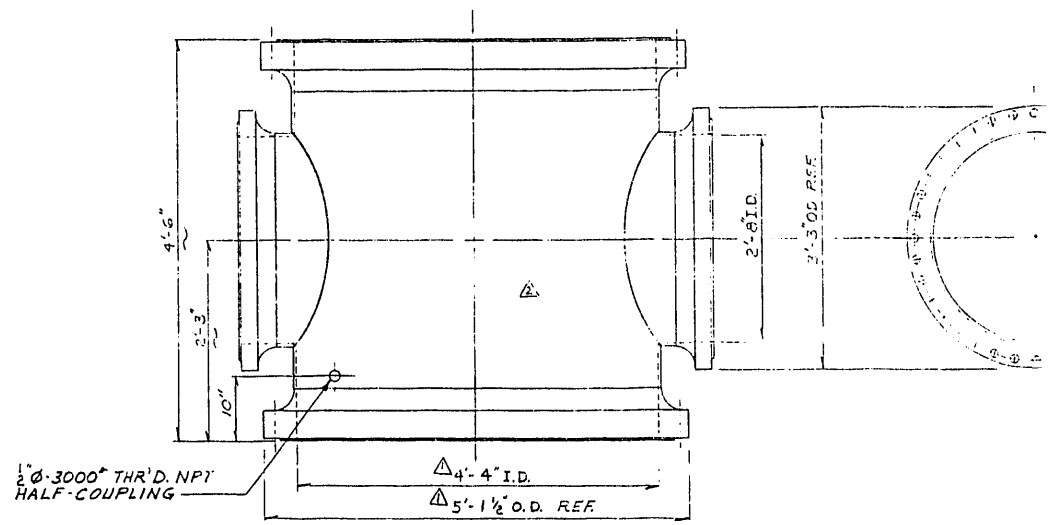
DRAWN DW	DATE 7-21-88	SCALE AS NOTED	
CHECKED F SJ	" 6-26-89		
APPRVD	"	CES-577-6-B	
APPRVD	"		

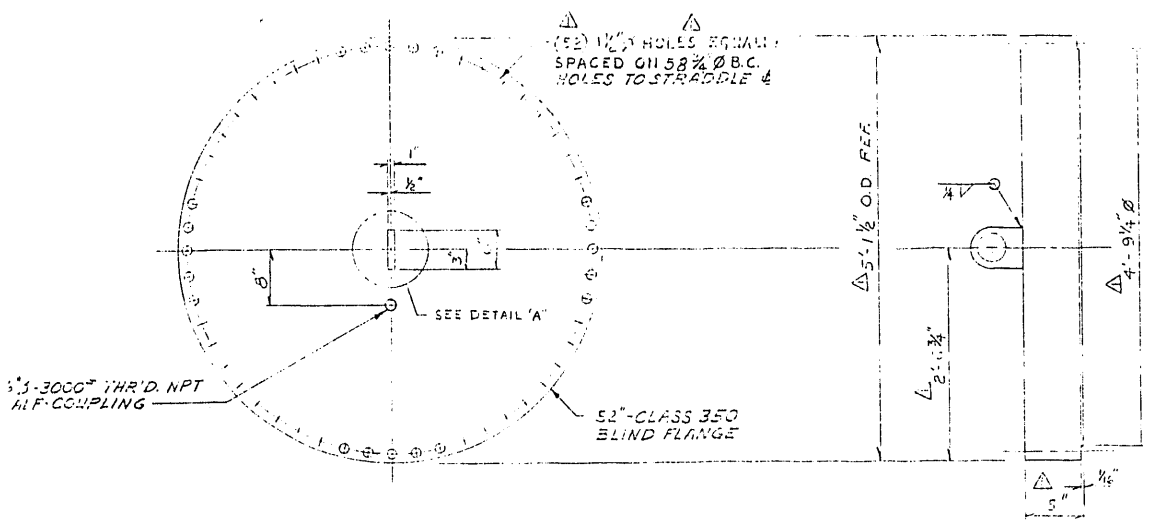
CES-577-5-B



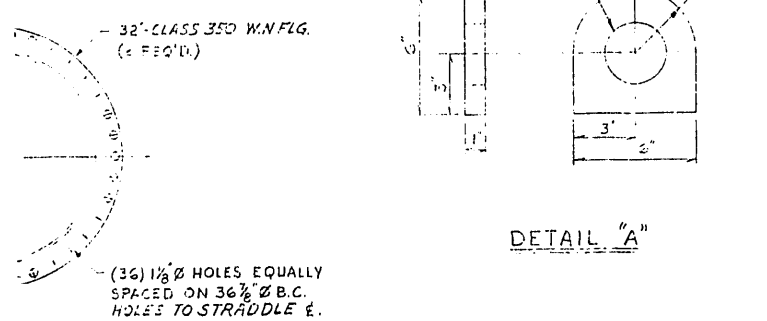
TOP SECTION
(1 REQ'D.) SCALE: 1"=1'-0"

CES-577-5-B-1





TOP HEAD
(1 REQ'D) SCALE: 1"=1'-0"
CES-577-5-B-2



DETAIL "A"

NOTES:

1. WALL THICKNESS IS TO BE VERIFIED BY FABRICATOR AND MAY BE CHANGED TO SUIT HIS DESIGN IN ACCORDANCE WITH THE A.S.M.E CODE, SECTION VIII DIV. 1.
2. SHELL MATERIAL SHALL BE SA516 GR.70
3. SEE VESSEL SPECIFICATION CES-577-SP-1

NO.	REVISION	BY	DATE
2	REMOVED 10" FLG. & BLIND.	FSJ	9-2-88
1	[illegible]	FSJ	8/15/89

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VESSEL

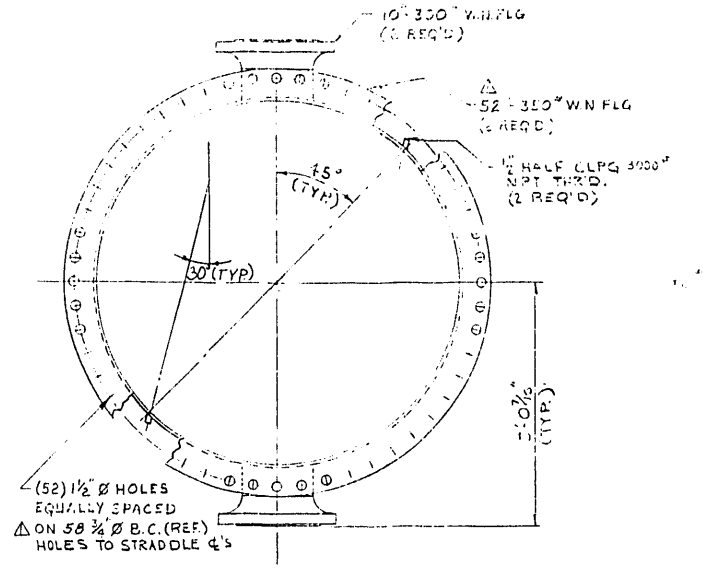
HT-HP ES AGGLOMERATOR

DRAWN JP DATE 7-19-88
CHECKED FSJ " 6-26-89
APPRVD "
APPRVD "

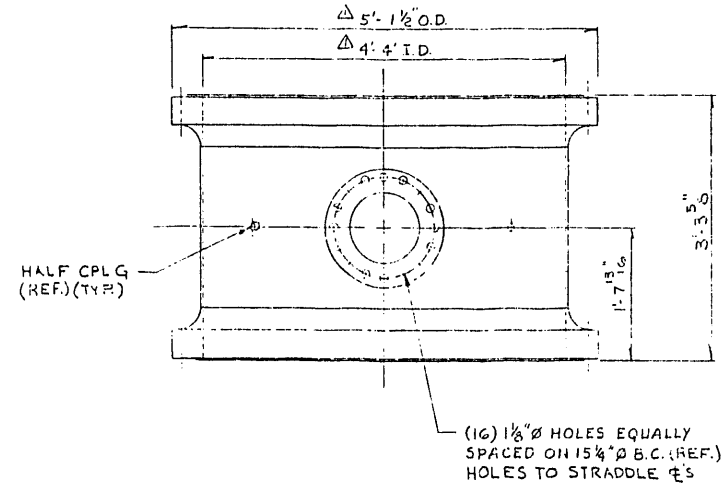
SCALE AS-NOTED

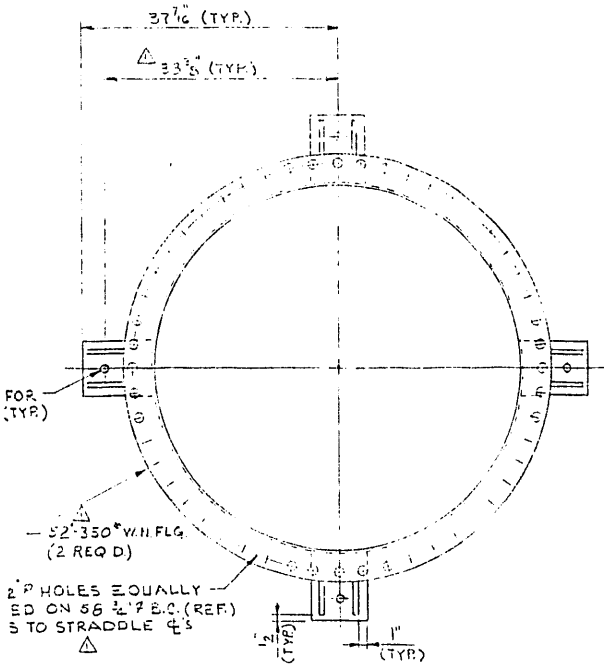
CES-577-5-B

CES-577-4-8

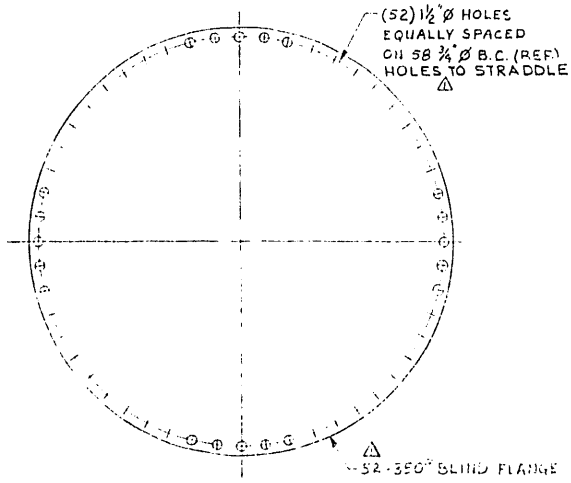


BOTTOM SECTION
(1 REQ'D) SCALE: 1"=1'-0"
CES-577-4-B-1

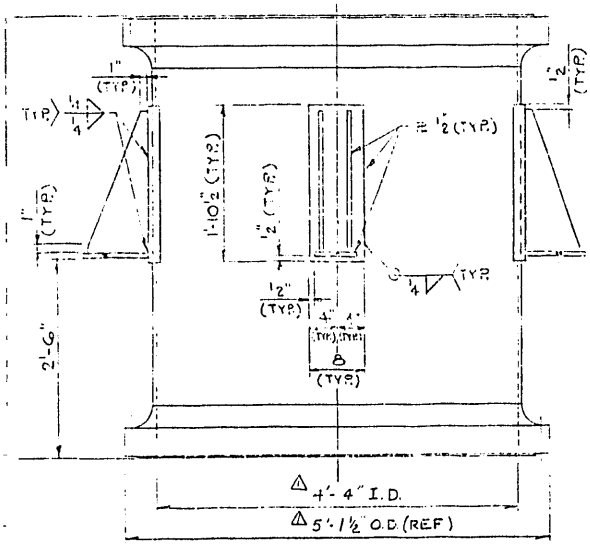


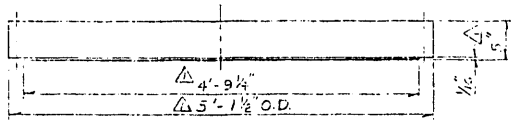


CENTER SECTION
(1 REQ'D.) SCALE 1"=1'-0"
CES-577-4-B-2



BOTTOM HEAD
(1 REQ'D.) SCALE 1"=1'-0"
CES-577-4-B-3





NOTE:
1. SEE VESSEL SPECIFICATION CES-577-SP-1

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VESSEL

HT-HP ES AGGLOMERATOR

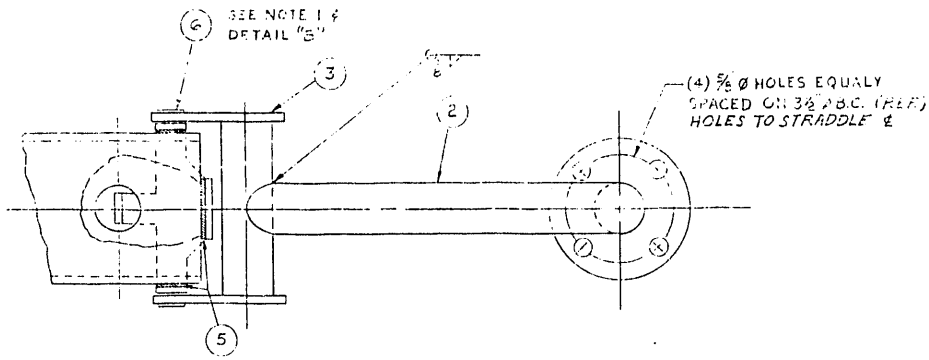
NO	REVISION	BY	DATE
1	[illegible]	FSJ	8/15/89

DRAWN JAD | DATE 7-20-89
CHECKD FSJ | " 6-26-89
APPRVD | "
APPRVD | "

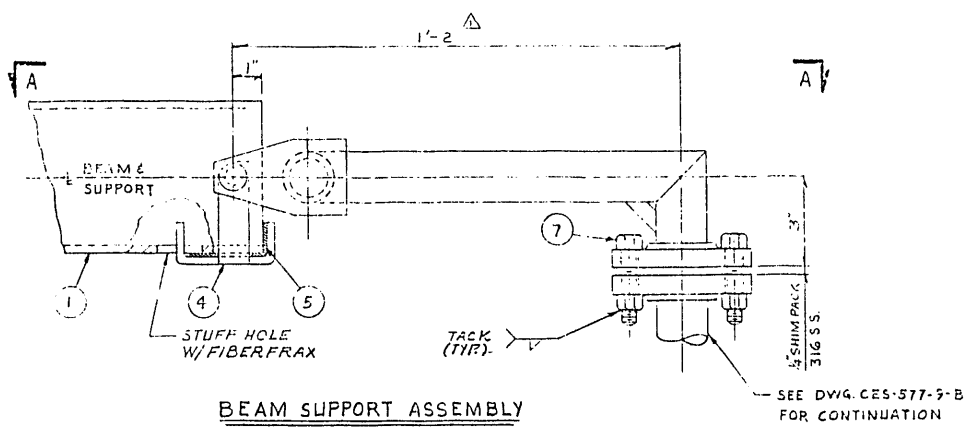
SCALE: AS-NOTED

CES-577-4-B

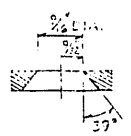
CES-577-10-B



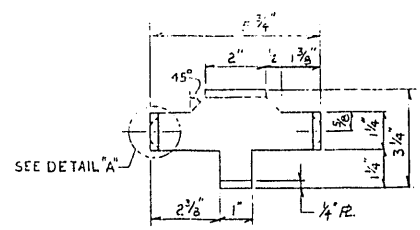
SECTION "A-A"



BEAM SUPPORT ASSEMBLY



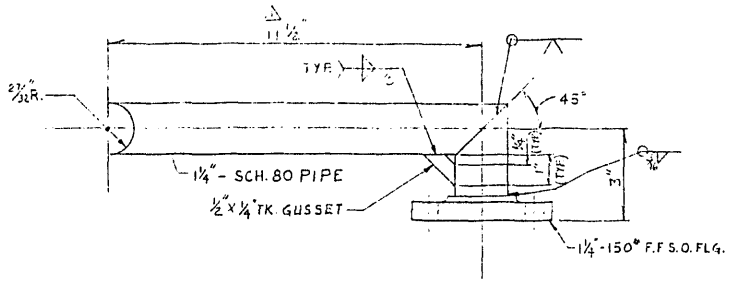
DETAIL "A"
(SEE NOTE 2)



BEAM CRADLE

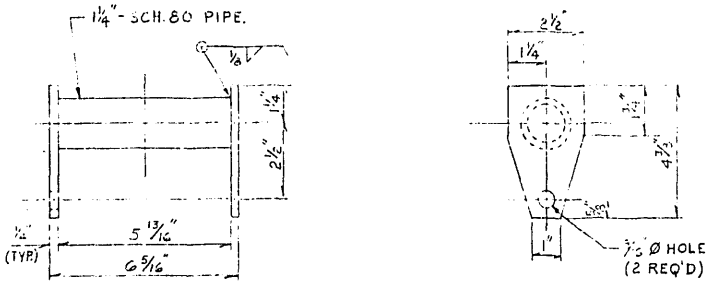
MATL: 316 S.S.
CES-577-10-B-1

BILL OF MATERIAL			
ITEM NO.	QUANT.	DESCRIPTION	PART NUMBER
1	1	BEAM	CES-577-2-B-3
2	2	SUPPORT ARM	CES-577-10-B-3
3	2	PIVOT SUPPORT	CES-577-10-B-2
4	2	BEAM CRADLE	CES-577-10-B-1
5	—	1/8" FIBARFRAX OR EQUAL	
6	4	1/2"Ø FLAT HEAD RIVET 316 SS	
7	6	1/2" X 2 1/2" LG. HEAVY HEX HEAD BOLT W/ HEX HEAD NUT. 316 SS	



BEAM CRADLE SUPPORT ARM

MATL: 316 S.S.
CES-577-10-B-3

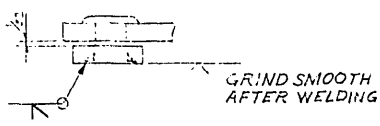


BEAM CRADLE PIVOT SUPPORT

MATL: 316 S.S.
CES-577-10-B-2

NOTES:

1. ALLOW 1/32" GAP BETWEEN BEAM CRADLE AND PIVOT SUPPORT WHEN RIVETING TO PERMIT BEAM CRADLE TO SWING FREELY.
2. 39° TAPERED HOLE FOR 1/2"Ø FLAT HEAD RIVET - COUNTERSUNK AND CHIPPED.



DETAIL "B"

1/4" R. (TYP.)

NO	REVISION	BY	DATE
1	11½ w. 12 3/8, 1'-2" w. 1'-2 3/4	FSJ	7-6-89

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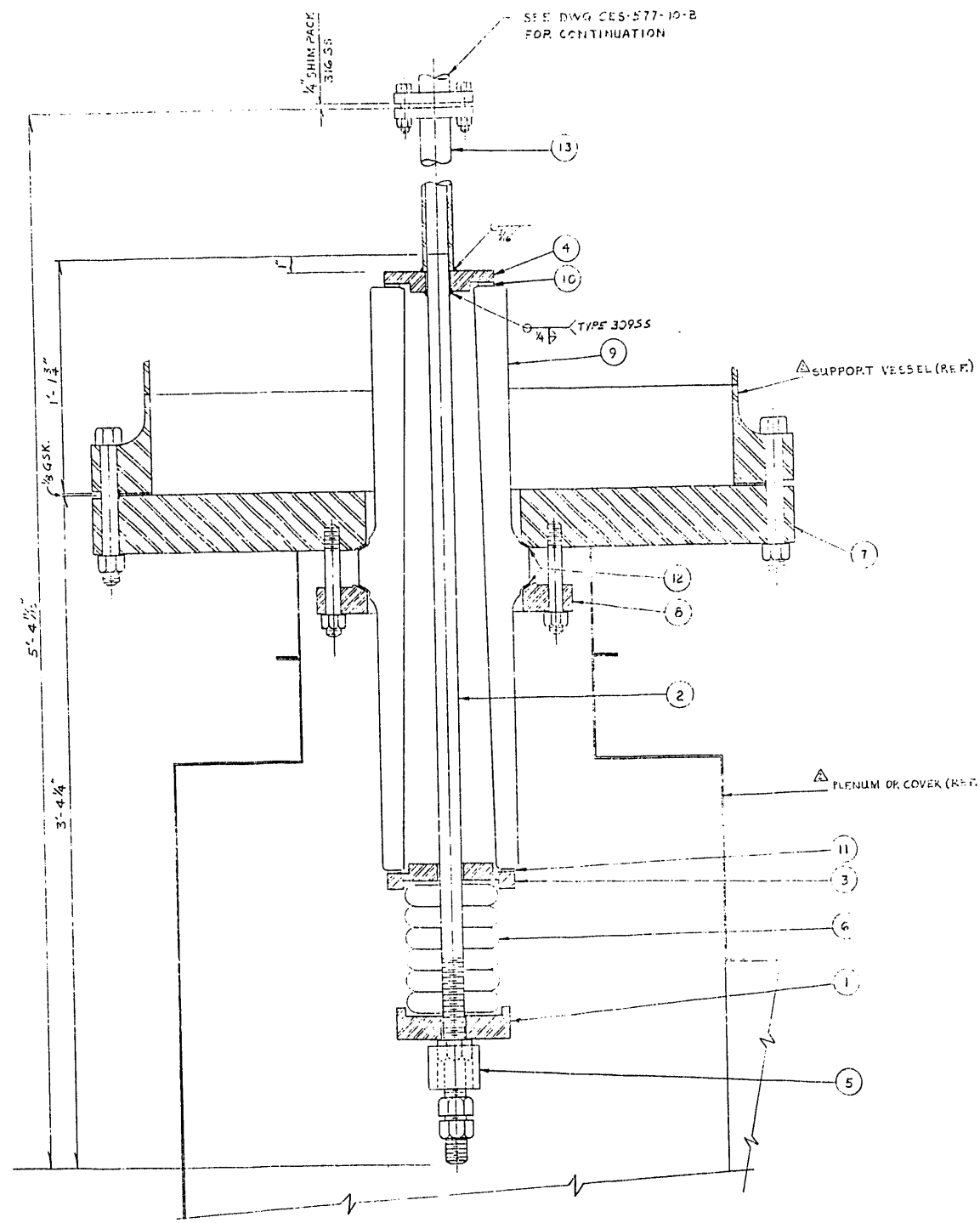
BEAM SUPPORT ASSEMBLY & DETAILS

HTE HP ES AGGLOMERATOR

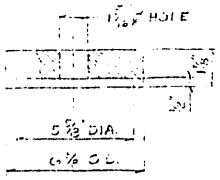
DRAWN	DATE 8-7-88	SCALE: 3/8" = 1"
CHECKD F S J	" 6-26-89	
APPRVD	"	CES-577-10-B
APPRVD	"	

CES-577-9-B

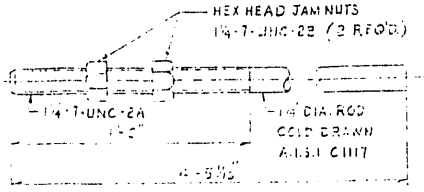


INSULATOR COMPARTMENT ASSEMBLY

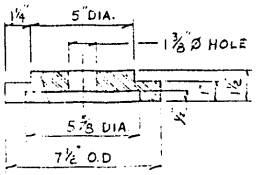
BILL OF MATERIALS			
ITEM NO.	QUANT	DESCRIPTION	PART NUMBER
1	2	SPRING CAP	CES-577-9-B-1
2	2	TERMINAL ROD	CES-577-9-B-2
3	2	SPRING BOOT	CES-577-9-B-3
4	2	END CAP	CES-577-9-B-4
5	2	TORQUE NUT	CES-577-9-B-5
6	2	SPRING	CES-577-9-B-6
7	2	INSULATOR SUPPORT FLANGE	CES-577-B-B-1
8	2	INSULATOR ADAPTER RING	CES-577-B-B-2
9	2	HIGH VOLTAGE BUSHING	CES-577-3-C-1
10	2	GASKET 4⅝" I.D. X 6½" O.D. X ⅛" TK. ANCHOR "TAURIL" SHEET OR EQUAL	CES-577-9-B-8
11	2	GASKET 5" I.D. X 7½" O.D. X ⅛" TK. ANCHOR "TAURIL" SHEET OR EQUAL	CES-577-9-B-9
12	4	GASKET 8⅝ I.D. X 10" O.D. X ⅛" TK. ANCHOR "TAURIL" SHEET OR EQUAL	CES-577-9-B-10
13	2	CONNECTOR PIPE	CES-577-9-B-7



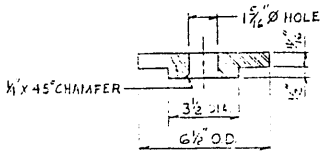
SPRING CAP
MATL: 316 S.S.
CES-577-9-B-1



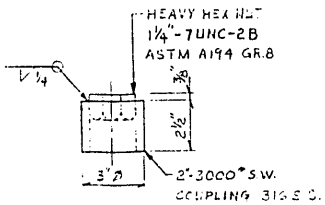
TERMINAL ROD
CES-577-9-B-2



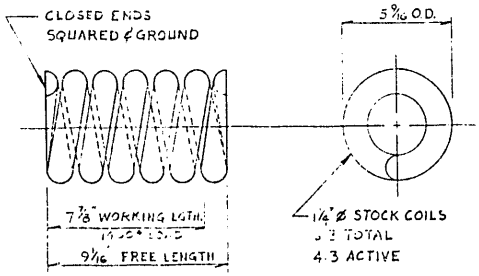
SPRING BOOT
MATL: 316 S.S.
CES-577-9-B-3



END CAP
MATL: 316 S.S.
CES-577-9-B-4

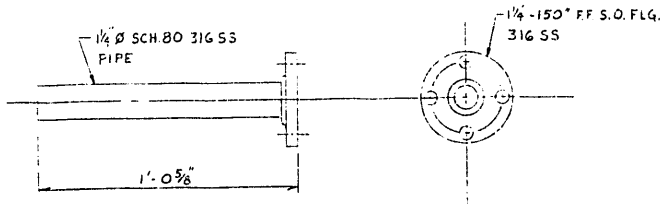


TORQUE NUT
CES-577-9-B-5



SPRING
MATL: SAE 5160
CES-577-9-B-6

NOTES:
1. HEX HEAD JAM NUTS REQ'D. ON PLENUM SIDE ONLY.



CONNECTOR PIPE
MATL: 316 SS
CES-577-9-B-7

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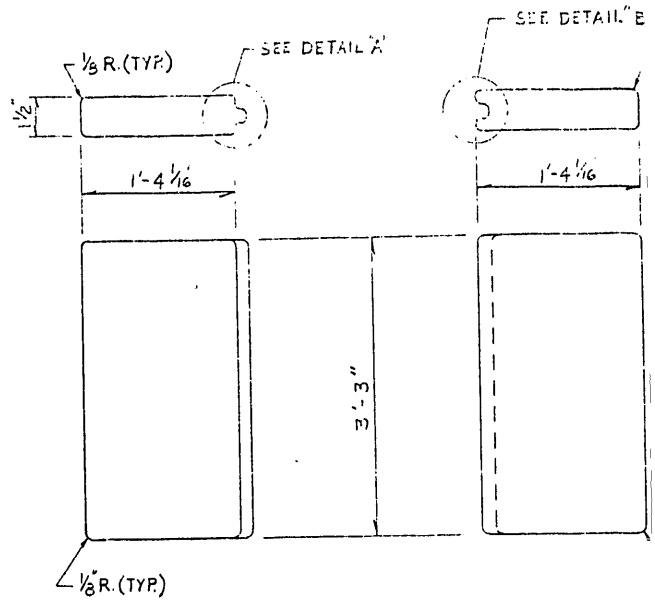
INSULATOR ASSEMBLY & DETAILS

HT-HP ES AGGLOMERATOR

NO.	REVISION	BY	DATE
2	ITEMS 14 & 15 REF. ONLY	FSJ	7-3-90
1	Rev. B : 2 w. B	FSJ	2-5-90

DRAWN DJJ DATE 6-1-88
CHECKED FSJ " 6-26-89
APPRVD " "
APPRVD " "

SCALE ¼" = 0'-1"
CES-577-9-B



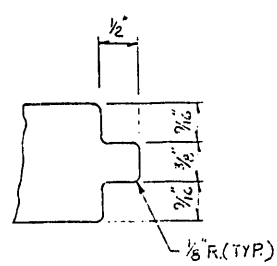
BAFFLE (TOP)

(1 REQ'D.)
CES-577-3-C-2

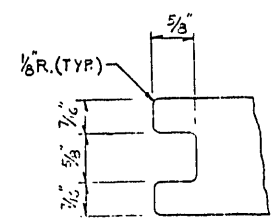
BAFFLE (B

(1 REQ'D.)
CES-577-3-C

MATERIAL: STRUCTUAL GRADE SILICON CARBI



DETAIL "A"

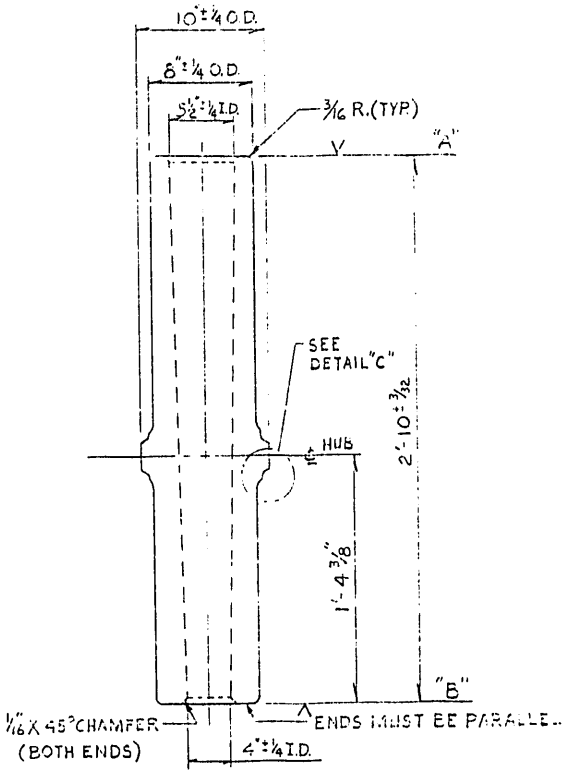


DETAIL "E

BRUNING 40-107 49618

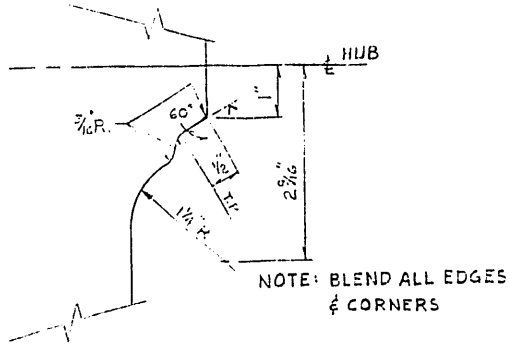
NOTES FOR HIGH VOLTAGE BUSHING -1:

1. MATERIAL FOR H.V. BUSHING TO BE 89% ALUMINA.
2. FACE "A" TO BE SQUARE WITH CENTER-LINE WITHIN .010 T.I.R.
3. FACES "A" & "B" TO BE PARALLEL WITHIN .010 T.I.R.
4. ALL SURFACES NOTED ▽ TO HAVE A GROUND FINISH.
5. OPERATING TEMP 1000°F.



HIGH VOLTAGE BUSHING

(2 REQ'D.)
CES-577-3-C-1



DETAIL 'C'

Research-Cottrell

Experienced Environmental People

P.O. Box 1500 Somerville New Jersey 08876

CERAMIC INTERNALS AND HIGH VOLTAGE BUSHING

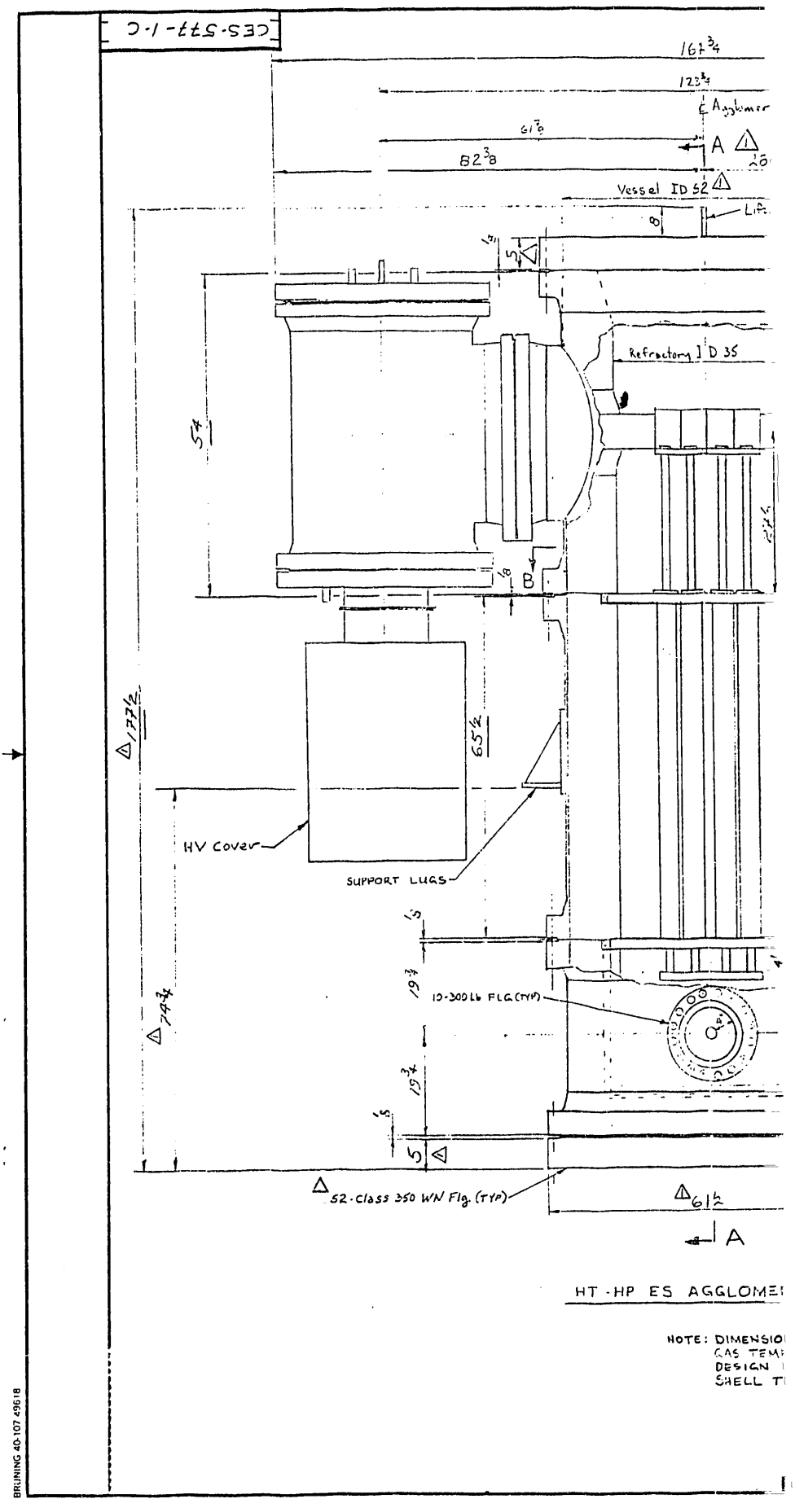
HT-HP ES AGGLOMERATOR

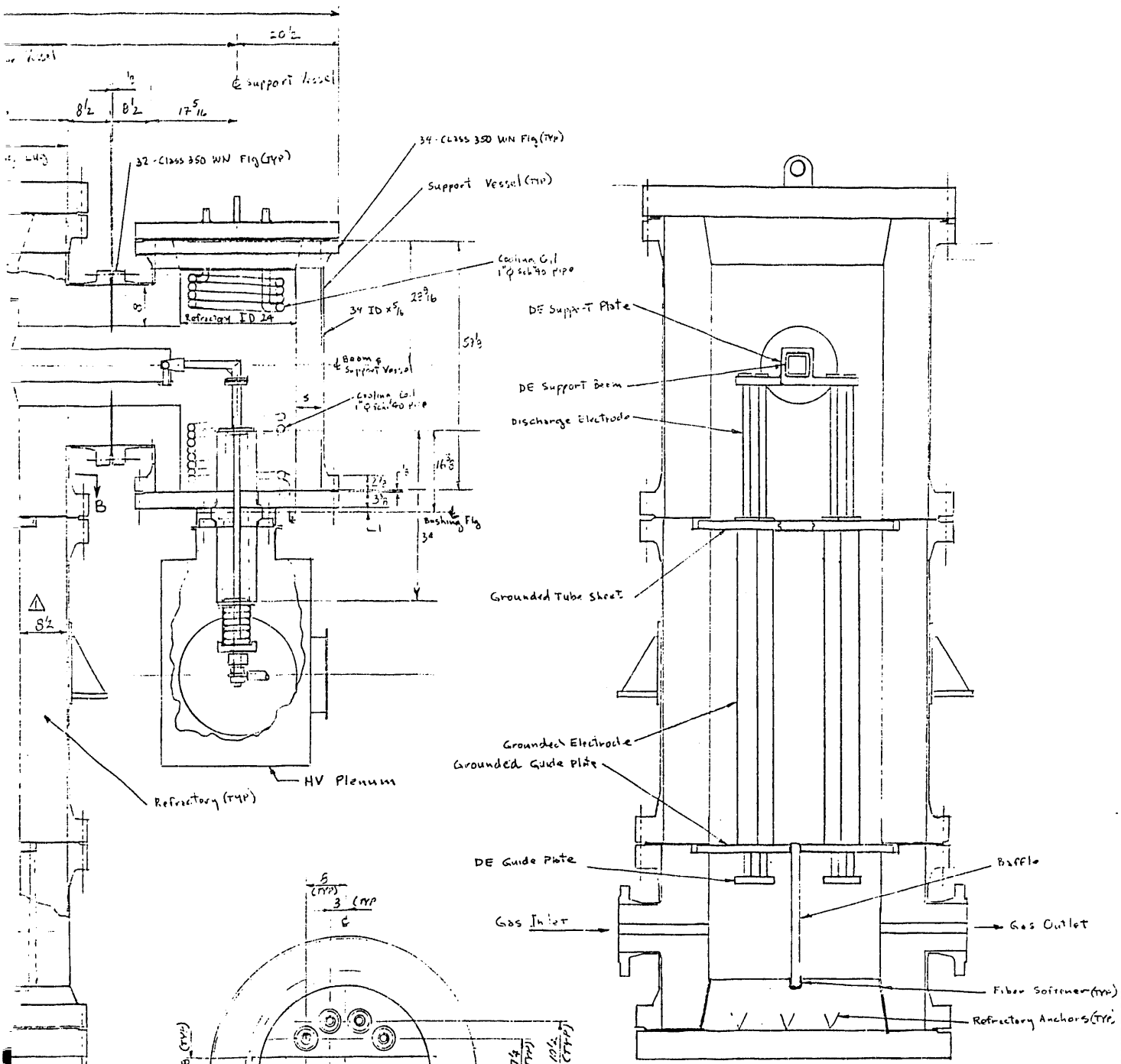
NO.	REVISION	BY	DATE
1	CHANGED DIM'S. 1'-7 7/16" TO 1'-4 1/2" & 2'-8 1/4" TO 3'-3"		

DRAWN ZAN DATE 7-6-88
CHECKD FSJ " 6-26-89
APPRVD "
APPRVD "

SCALE: NONE

CES-577-3-C





SECTION A-A

SECTION B-B

ATOR

S IN INCHES
2500°F
ESSURE 250 PSIG
MPERATURE 650°F

CES 577

Research-Cottrell

Experienced Environmental People

P.O. Box 1500 Somerville New Jersey 08876

GENERAL ARRANGEMENT

HT-HP ES AGGLOMERATOR

NO.	REVISION	BY	DATE
1	[illegible]	FSJ	9/1/89

DRAWN FSJ DATE 6-30-89

CHECKD

APPRVD

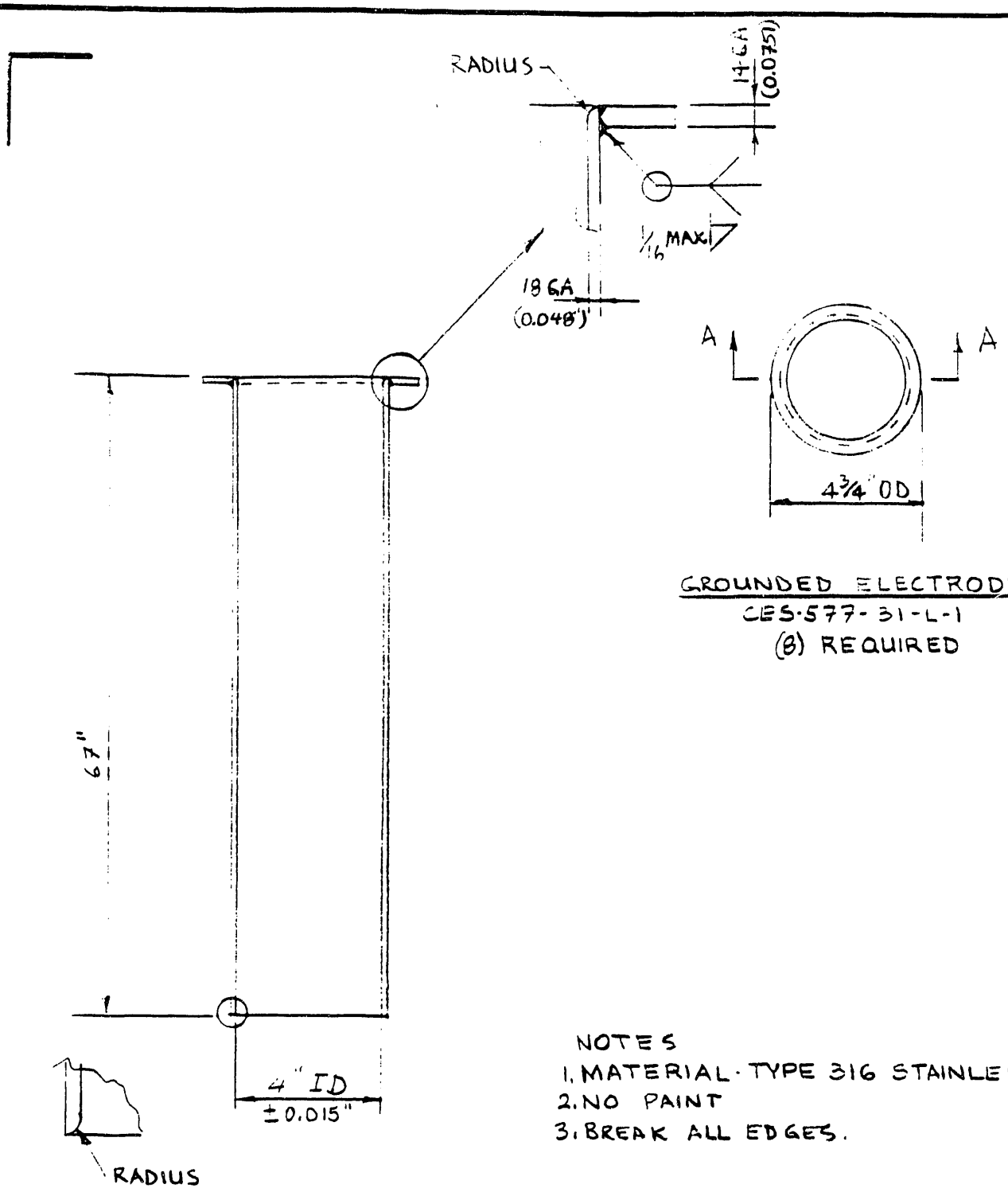
APPRVD

SCALE 1:16

CES-577-1-C-REV. 1

APPENDIX B

ELECTROSTATIC AGGLOMERATOR CERAMIC AND METAL INTERNALS



GROUNDED ELECTRODE
CES-577-31-L-1
(8) REQUIRED

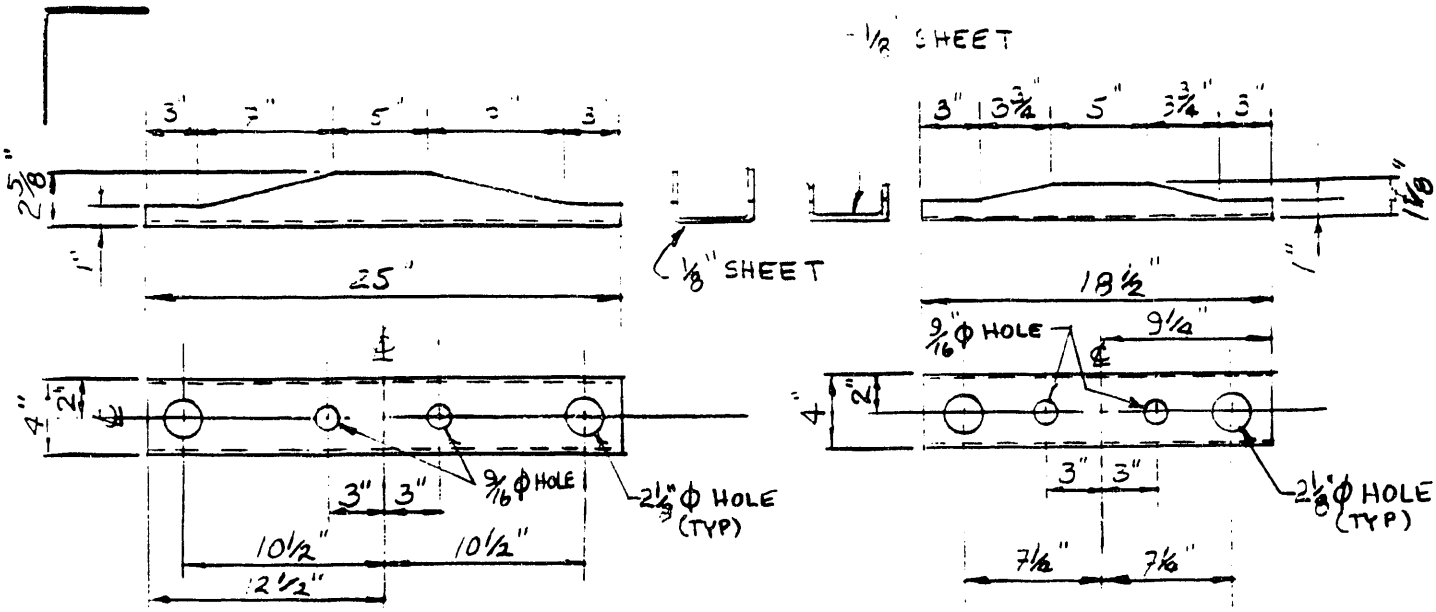
NOTES
1. MATERIAL - TYPE 316 STAINLESS STEEL
2. NO PAINT
3. BREAK ALL EDGES.

NO.	REVISION	BY	DATE

Research-Cottrell
P.O. Box 1500 Somerville New Jersey 08876

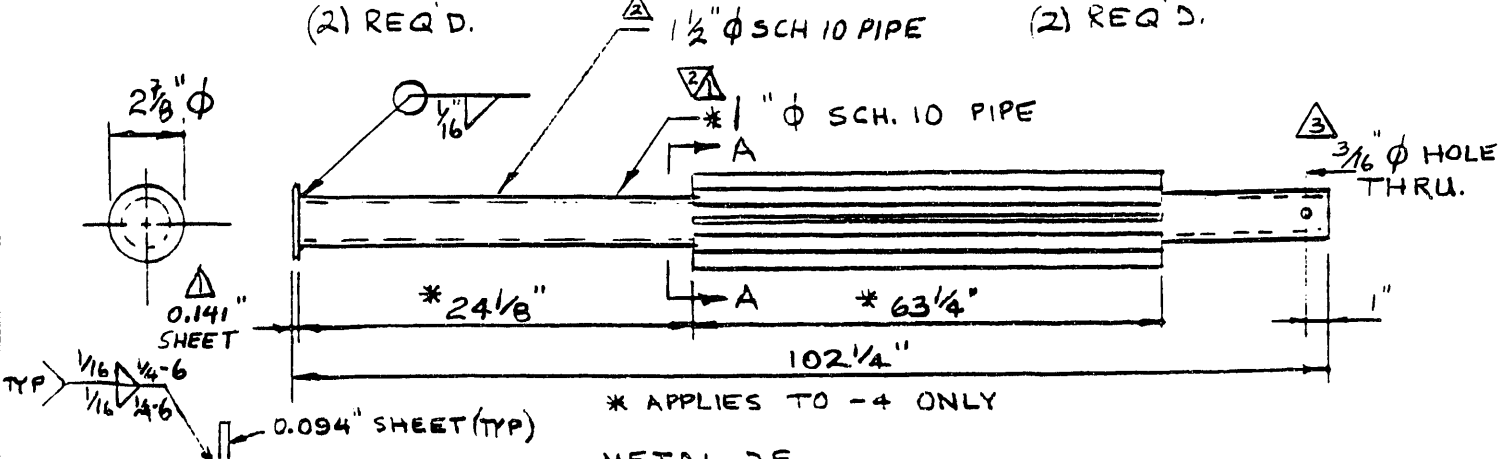
HT-HP ESA
GROUNDED ELECTRODE

DRN. ESJ	DATE 5-29-90	SCALE: NC
CH'K		CES-577-31-L
APP.		



D.E. SUPPORT
CES-577-30-L-1
(2) REQ'D.

D.E. SUPPORT
CES-577-30-L-2
(2) REQ'D.



* APPLIES TO -4 ONLY

METAL D.E.
CES-577-30-L-3
(4) REQ'D.
CES-577-30-L-4
(4) REQ'D.

* SECTION A-A

FOR NOTES SEE DWG. CES-577-29-L

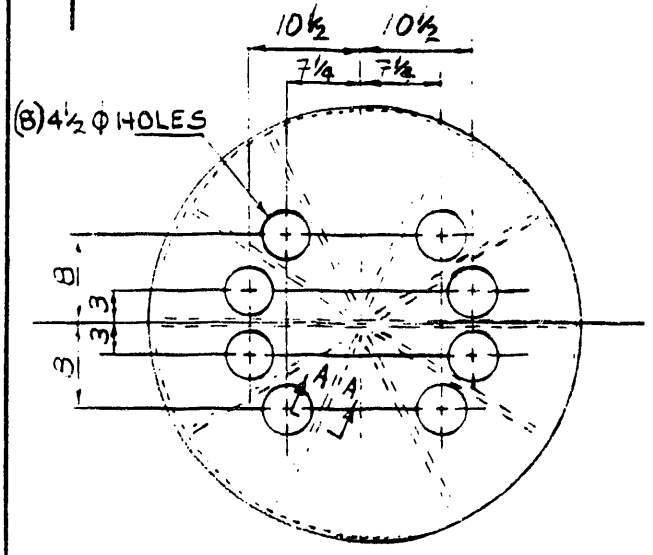
NO.	REVISION	BY	DATE
3	ADDED HOLE	FSJ	7-18-90
2	-3 W. 1" PIPE	FSJ	3-8-90
1	ON. W.O. -4 ADDED, 1 W. 1 1/2 0.141 W/S	FSJ	2-22-90

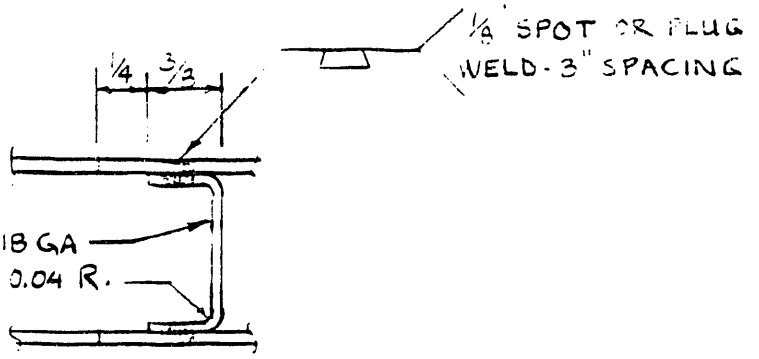
Research-Cottrell
P.O. Box 1500 Somerville New Jersey 08876

METAL INTERNALS

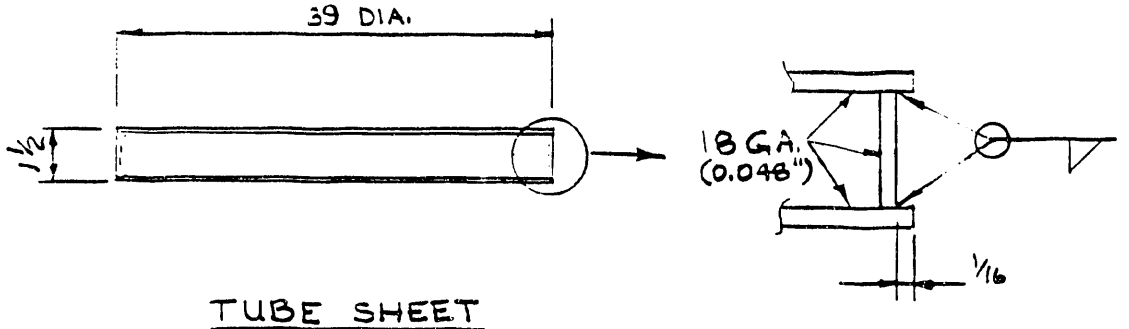
DRN. F.S.J.... DATE 7-22-89 SCALE: NONE
CH'K ..... " .....
APP..... " .....

CES-577-30-L





SECTION A-A
TYPICAL STIFFENER



TUBE SHEET
CES-577-32-L-1

NOTES
1. MATERIAL - TYPE 316 STAINLESS STEEL
2. NO PAINT
3. BREAK ALL EDGES
4. ALL DIMENSIONS IN INCHES

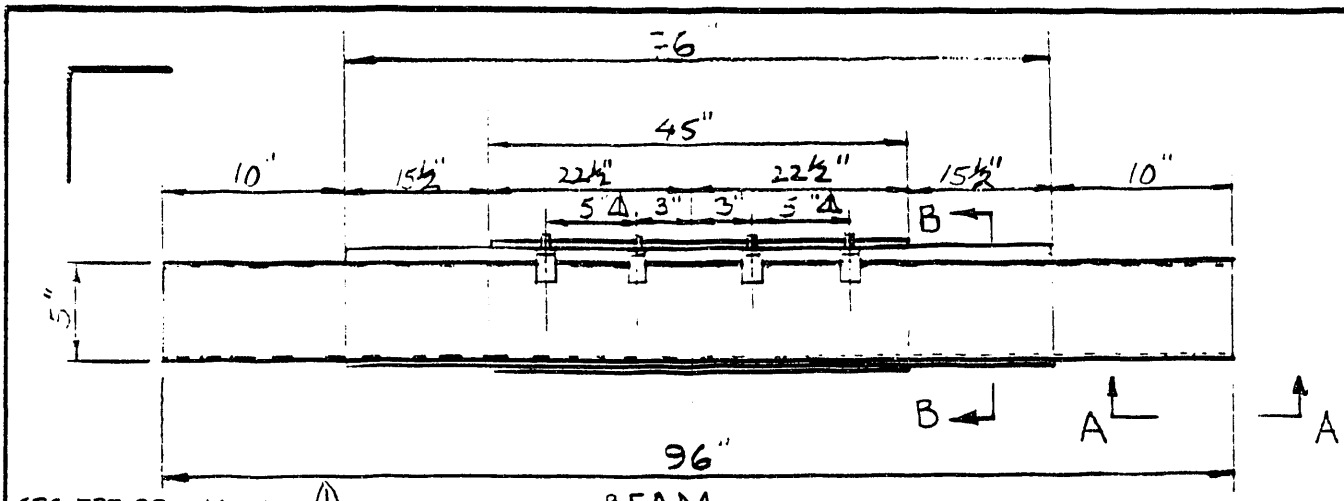
NO.	REVISION	BY	DATE

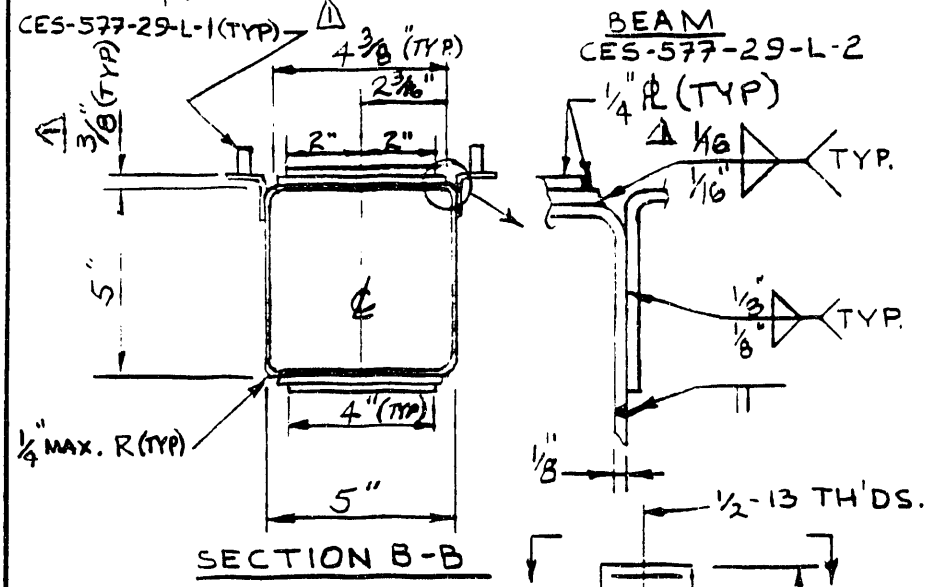
Research-Cottrell
P.O. Box 1500 Somerville New Jersey 08876

HT - HP ESA
TUBE SHEET

DRN. F.S.L. DATE 9-19-90 SCALE: NONE
CH'K .....
APP. .....

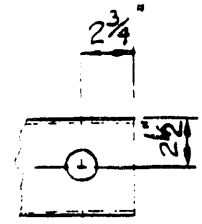
CES-577-32-L



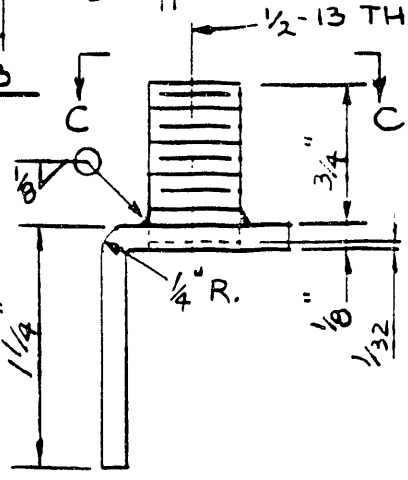


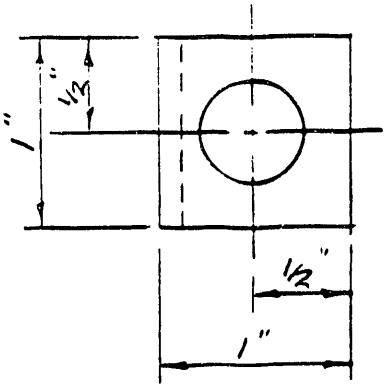
SECTION B-B

BEAM
CES-577-29-L-2



SECTION A-A





SECTION C-C

CLIP
CES-577-29-L-1
(8) REQUIRED

NOTES
1. MATERIAL - HAYNES ALLOY NO. 230
2. RADIUS ALL EDGES AND CORNERS.

NO.	REVISION	BY	DATE
1	1/4 R w. 1/8, 5" w. 8", 3/8" w. 1/4", 1/16 w 1/8	FSJ	2-22-90

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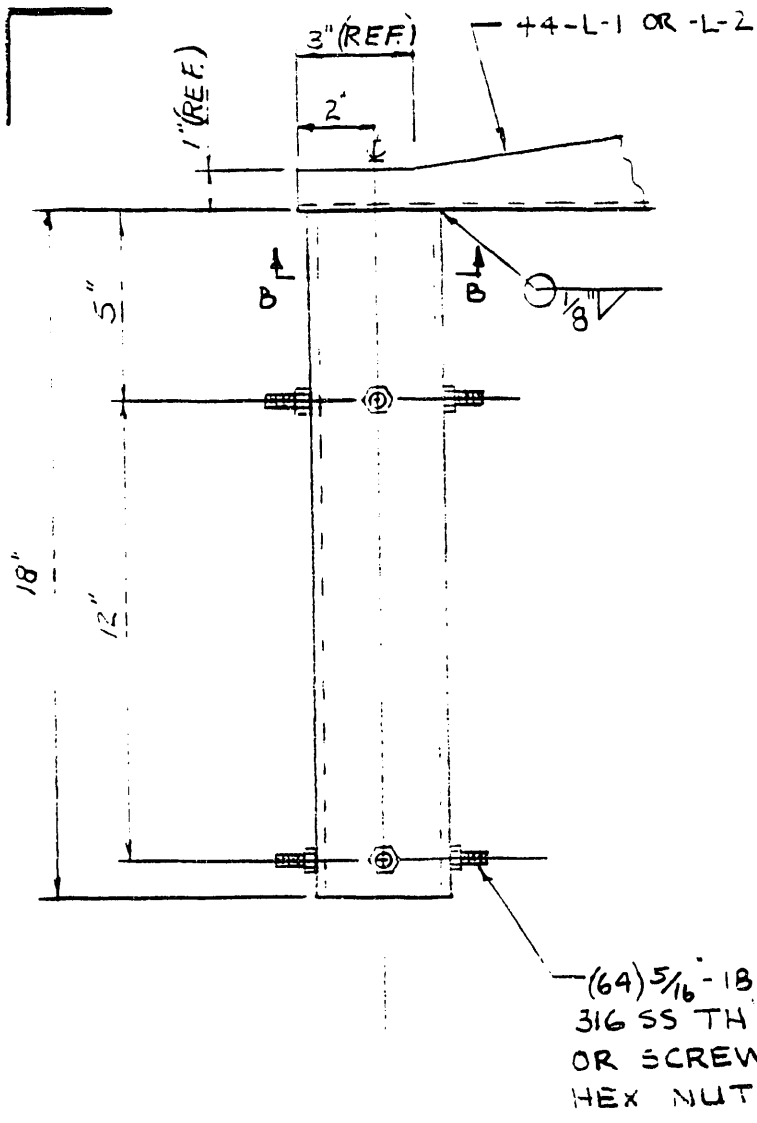
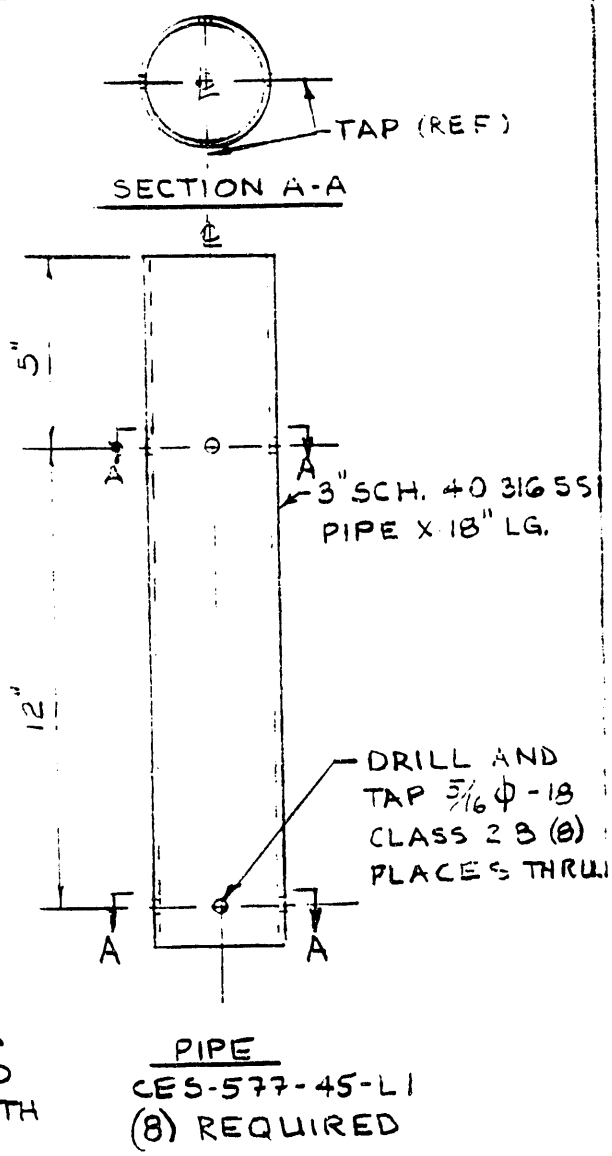
P.O. Box 1500 Somerville New Jersey 08876

BEAM

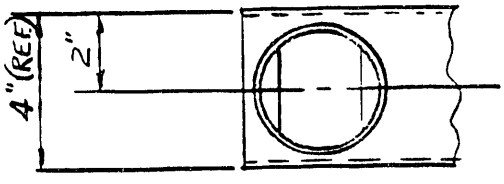
DRN. F. S. J.
CH'K .....
APP. .....
DATE 7-22-89
SCALE: ~~1~~
CES-577-29-L



ASSEMBLY



PIPE
CES-577-45-L1
(8) REQUIRED



SECTION B-B

NO.	REVISION	BY	DATE

R-C Environmental Services & Technologies
P.O. Box 1500 Somerville New Jersey 08876

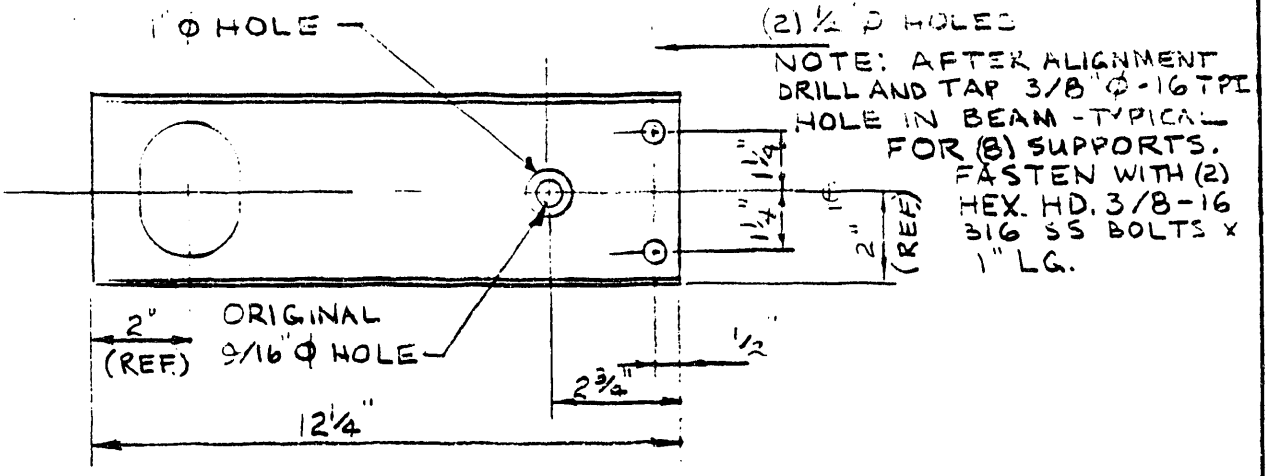
ESA
DE SUPPORTS

DRN. C.S.J.
CH'K .....
APP. .....

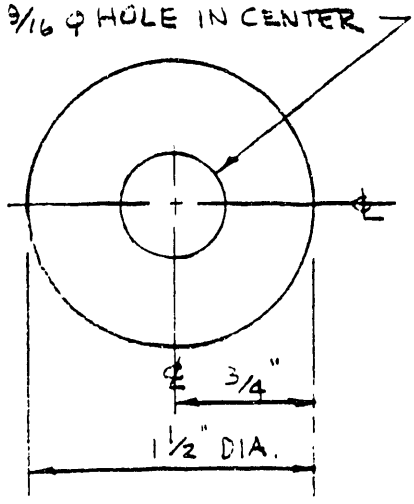
DATE 2-20-91

SCALE: ∞

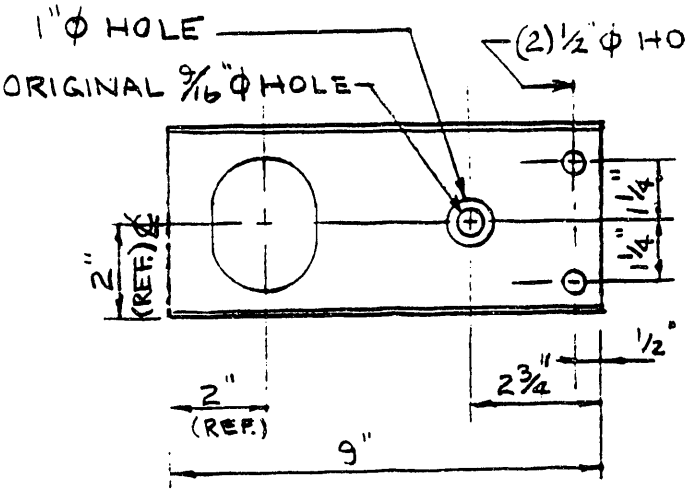
CES 577-45-L



CES-577-44-L-1
MODIFIED SUPPORT
(4) NEEDED
MADE FROM (2) SUPPORTS CES 577-30-L-1



WASHER
1/8" 316 SS
(8) NEEDED
CES-577-44-L-3



CES-577-44-L-2
MODIFIED SUPPORT
(4) NEEDED
MADE FROM (2) SUPPORTS CES-577-30-L-2

NO.	REVISION	BY	DATE

R-C Environmental Services & Technologies
PO Box 1500 Somerville New Jersey 08876

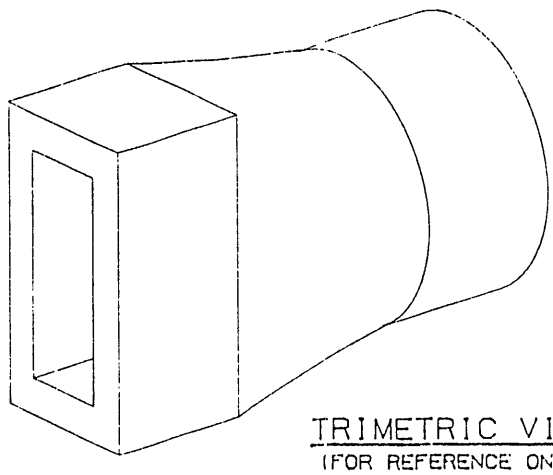
DE SUPPORTS

DRN. FSJ DATE 12-14-90 SCALE: ¾"
CH'K .....
APP. .....

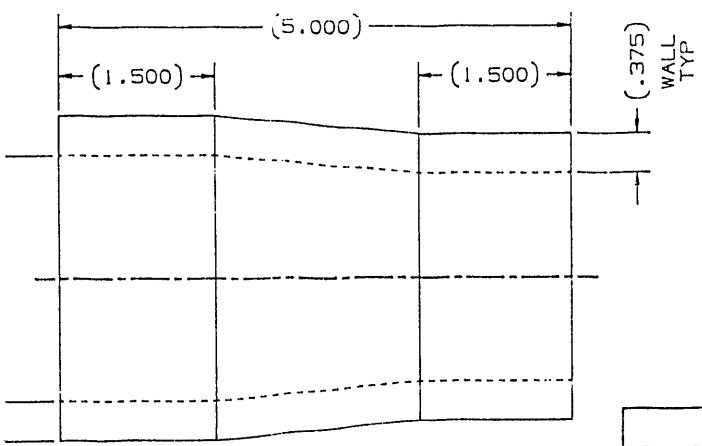
CES-577-44-L

.375
WALL
TYP
1.500
5.000
1.500
.375
WALL
TYP
(B)
.375
WALL
TYP
A
.375
WALL
TYP
B
(.375)

CAD/CA



TRIMETRIC VIEW
(FOR REFERENCE ONLY)



TABULATION				
PART #	SHAPE #	DIM "A"	DIM "B"	VOLUME (in³)
93.2561	AAM-23 32	1.60	.63	12.65
93.2562	AAM-24 33	1.97	.78	13.62
93.2563	AAM-25 34	2.36	.94	14.65

REF. CUSTOMER DWG. NO. CES-577-22-L.

TOLERANCES
UNLESS OTHERWISE SPECIFIED
FRAC ±1/16 DEC ± .062

SHAPE:
PART NO:
MIX: RFX 3349-5C
VOLUME:

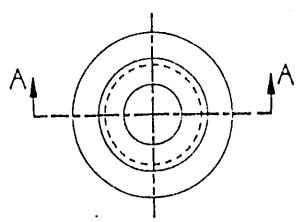
NO.	DATE	RECORD OF REVISIONS	BY	CHK

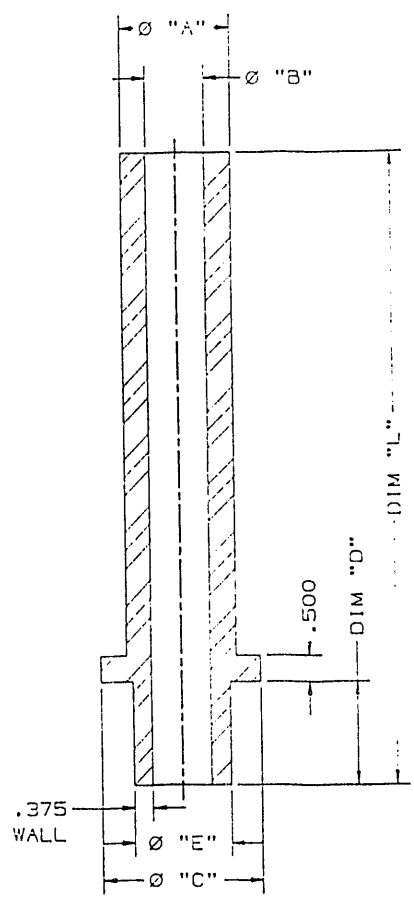
THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

CYCLONE TRANSITION (TABULATION)

SCALE FULL DATE 5/23/90 DRAWN E.H.
TRACED ____ CHECKED ____ APPROVED JJS

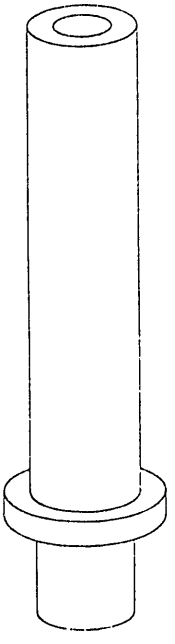
31987 C | 0





SECTION A-A

CAD/C



TRIMETRIC VIEW
(FOR REFERENCE ONLY)

TABULATION								
PART #	SHAPE #	Ø "A"	Ø "B"	Ø "C"	DIM "D"	Ø "E"	DIM "L"	VOLUME (in^3)
93.2555	AAM-26	2.16	1.16	3.16	1.97	1.91	12.10	32.36
93.2556	AAM-27	2.61	1.61	3.61	2.34	2.36	12.47	41.85
93.2557	AAM-28	2.83	2.08	4.08	2.74	2.83	12.86	40.59

REF. CUSTOMER DWG. NO. CES-577-21-L; REV 2.

AM

TOLERANCES
UNLESS OTHERWISE SPECIFIED
FRAC ±1/16 DEC ± .062

SHAPE:
PART NO:
MIX: RFX 3349-5C
VOLUME:

NO.	DATE	RECORD OF REVISIONS	BY	CHK

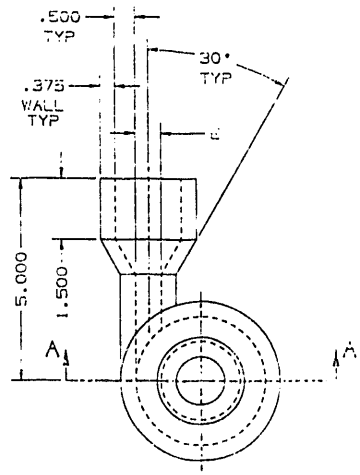
THIS DRAWING IS PROPERTY OF
THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

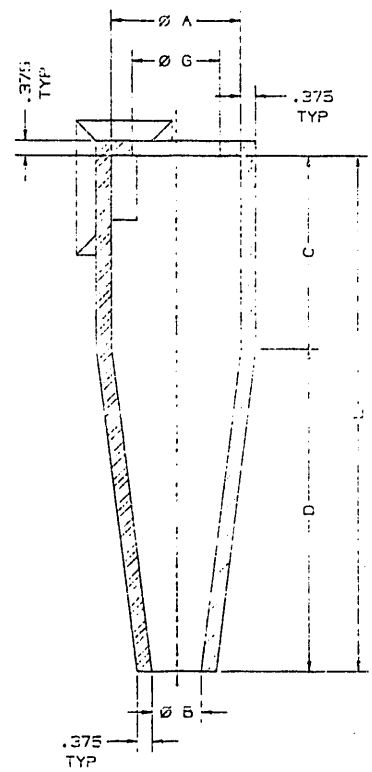
CYCLONE TUBE (TABULATION)

SCALE .25 DATE 5/21/80 DRAWN E.H
TRACED ____ CHECKED ____ APPROVED J.S

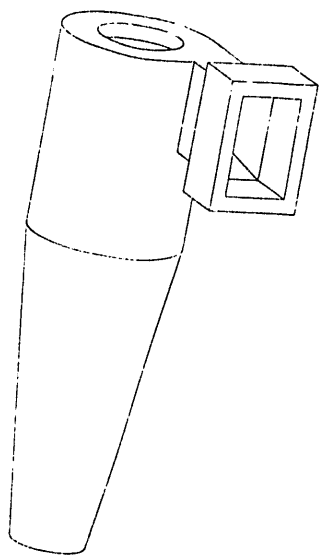
31984-C | 0

6-1-82

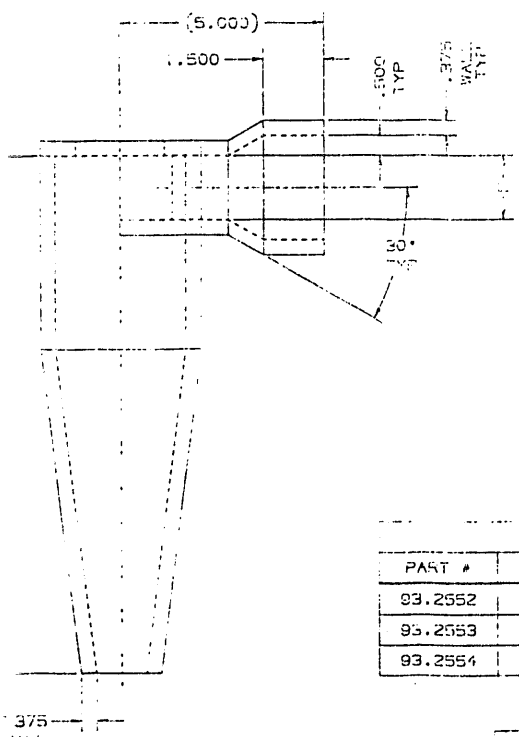

.500
TYP
30°
TYP
.375
WALL
TYP
5.000
1.500
A
A


Ø A
Ø G
.375
TYP
.375
TYP
C
D
Ø B
.375
TYP

SECTION A-A



TRIMETRIC VIEW
(FOR REFERENCE ONLY)



TABULATION										
PART #	SHAPE #	Ø "A"	Ø "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"	Ø "G"	DIM "L"	VOLUME (in³)
93.2552	AAM-23	3.19	1.20	4.78	7.98	.63	1.60	2.16	12.76	57.92
93.2553	AAM-24	3.93	1.47	5.90	9.83	.78	1.97	2.61	15.73	81.04
93.2554	AAM-25	4.72	1.77	7.08	11.80	.94	2.36	3.08	18.88	110.34

REF. CUSTOMER DWG. NO. CES-577-21-L ; REV. 2.

CAD/CAM

TOLERANCES
UNLESS OTHERWISE SPECIFIED
FRAC ±1/16 DEC ± .002

MATL REX 3349-50

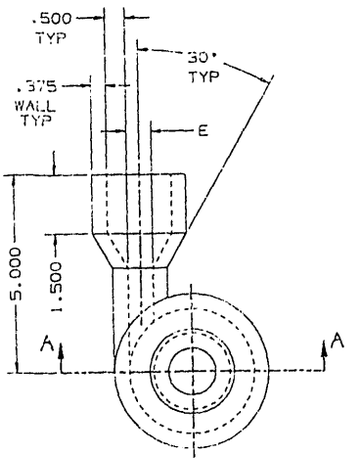
NO.	DATE	RECORD OF REVISIONS	BY	CHK

THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

CYCLONE (TABULATION)

SCALE HALF DATE 8/25/80 DRAWN EJH
TRACED ____ CHECKED ____ APPROVED JJS

31983-D | 0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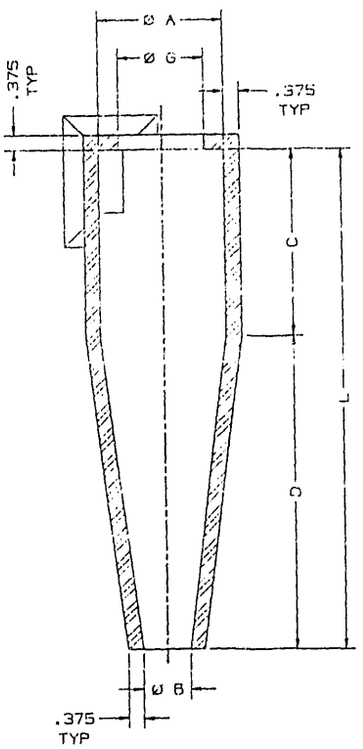
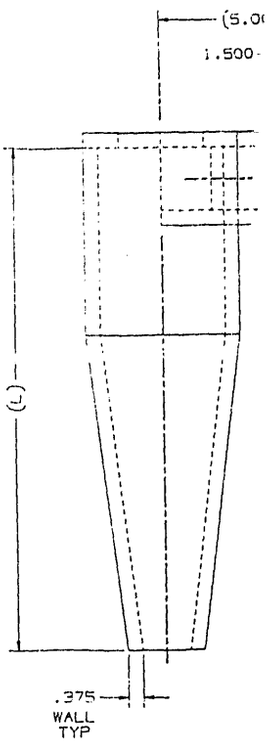
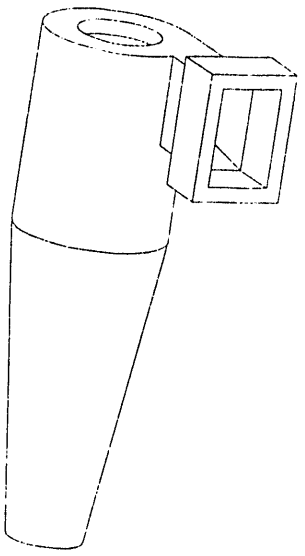
TYP
30°
TYP
.375
WALL
TYP
E
5.000
1.500
A
A

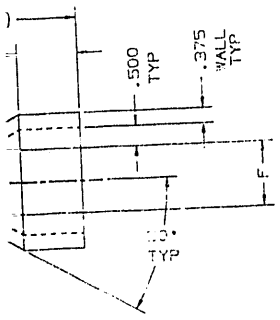

Ø A
Ø G
.375
TYP
.375
TYP
C
L
Ø B
.375
TYP

SECTION A-A


(5.0
1.500
(L)
.375
WALL
TYP



TRIMETRIC VIEW
(FOR REFERENCE ONLY)



TABULATION

PART #	SHAPE #	Ø "A"	Ø "B"	DIM "C"	DIM "D"	DIM "E"	DIM "F"	Ø "G"	DIM "L"	VOLUME (in³)
93.2552	AAM-23	3.19	1.20	4.78	7.98	.63	1.60	2.16	12.76	57.92
93.2553	AAM-24	3.93	1.47	5.90	9.83	.78	1.97	2.61	15.73	81.04
93.2554	AAM-25	4.72	1.77	7.08	11.80	.94	2.36	3.08	18.88	110.34

REF. CUSTOMER DWG. NO. CES-577-21-L ; REV. 2.

AD/CAM

TOLERANCES
UNLESS OTHERWISE SPECIFIED
FRAC ±1/16 DEC ± .062
SHAPE:
PART NO:
MIX: RFX 3349-5C
VOLUME:

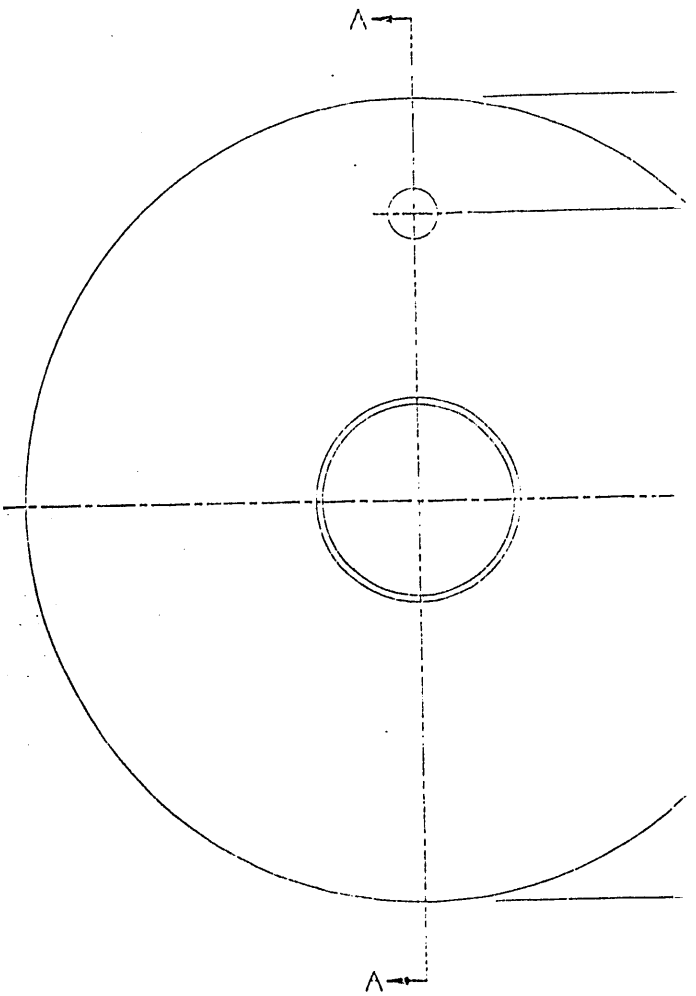
NO.	DATE	RECORD OF REVISIONS	BY	CHK

THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

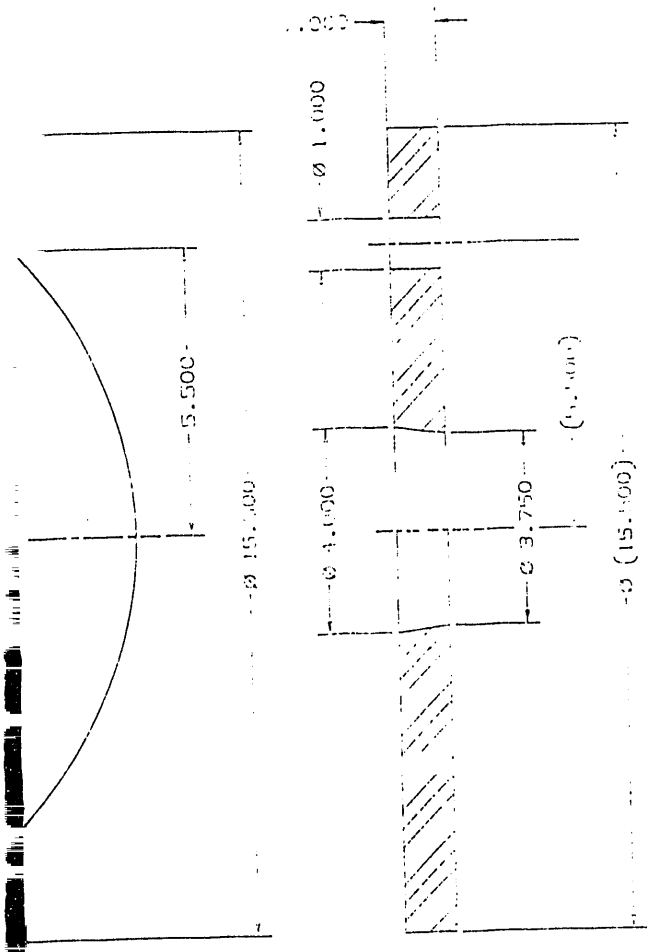
CYCLONE (TABULATION)

SCALE HALF DATE 5/25/90 DRAWN EJH
TRACED ____ CHECKED ____ APPROVED JJS

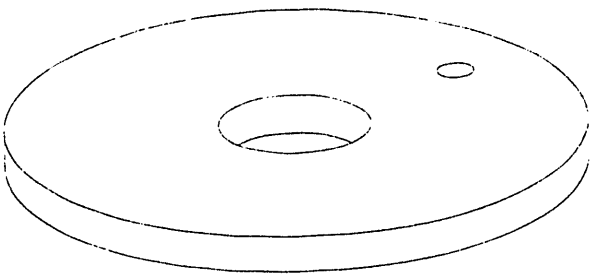
31983-C | 0



CAD/CA



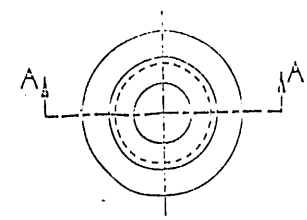
SECTION A-A

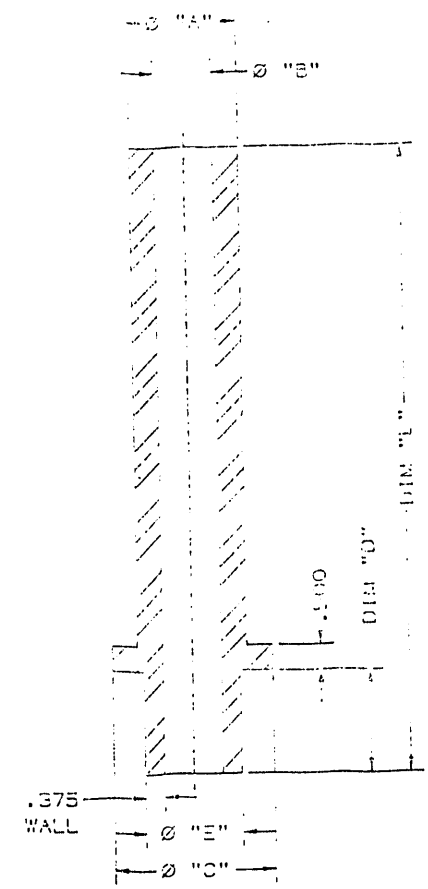


TRIMETRIC VIEW
(FOR REFERENCE ONLY)

REF. CUSTOMER DWG. NO. CES-577-22-L.

TOLERANCES UNLESS OTHERWISE SPECIFIED: FRAC ±1/16 DEC ±.002				THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION		
SHAPE: AAM-22				SUPPORT PLATE		
PART NO: 93.2551						
MIX: RFX 3349-50				SCALE HALF DATE 5/21/93 DRAWN EJH		
VOLUME: 176.111in³	NO.	DATE	RECORD OF REVISIONS BY CHK	TRACED ____ CHECKED ____ APPROVED JJS	31985-C	0





SECTION A-A

CAD/

TRIMETRIC VIEW
(FOR REFERENCE ONLY)

TABULATION								
PART #	SHAPE #	Ø "A"	Ø "B"	Ø "C"	DIM "D"	Ø "E"	DIM "L"	VOLUME (in^3)
93.2555	AAM-26	2.16	1.16	3.16	1.97	1.91	12.10	32.36
93.2553	AAM-27	2.61	1.61	3.61	2.34	2.36	12.47	41.85
93.2557	AAM-28	2.93	2.08	4.08	2.74	2.83	12.88	40.59

REF. CUSTOMER DWG. NO. CES-577-21-L; REV 2.

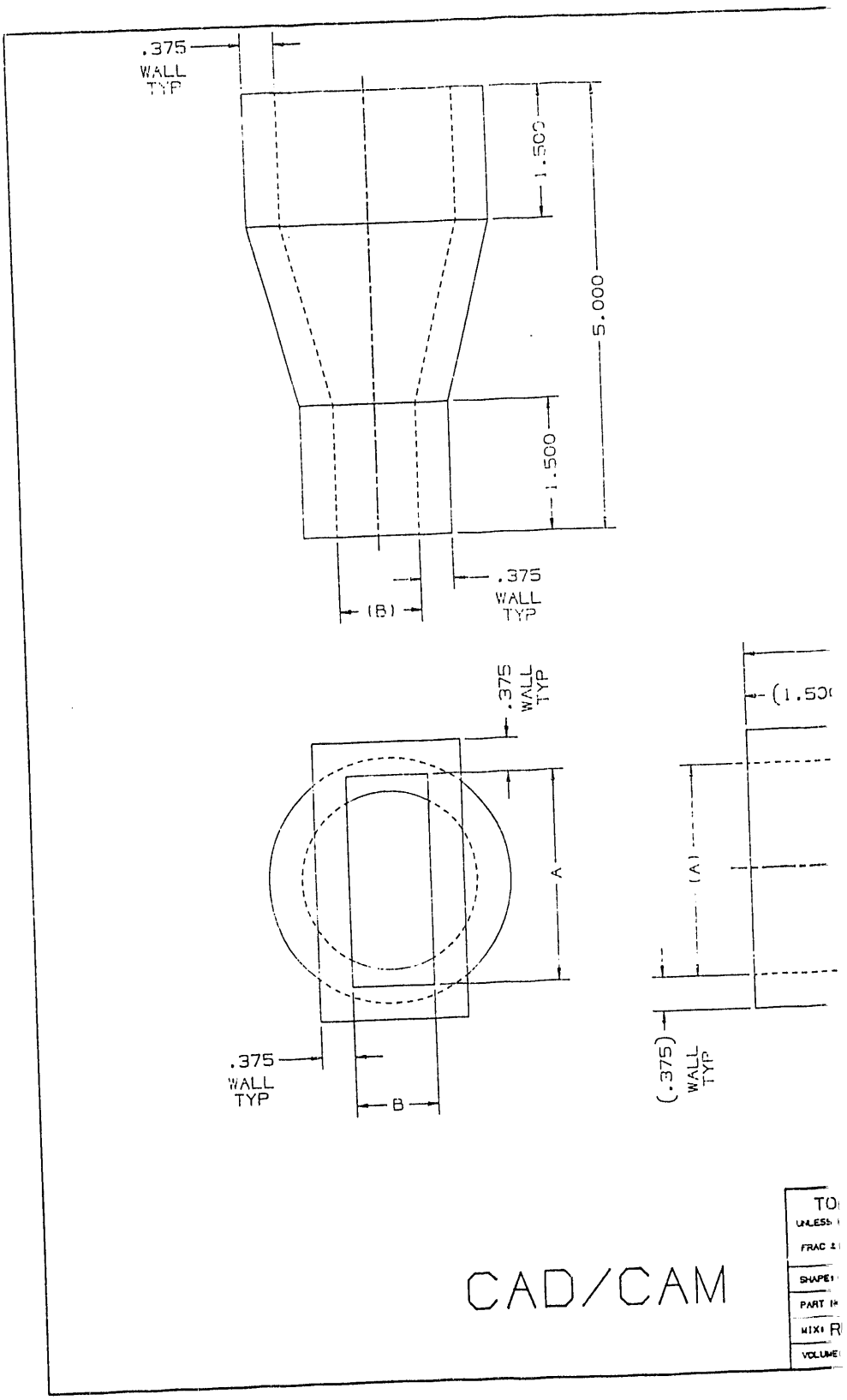
TOLERANCES						
UNLESS OTHERWISE SPECIFIED						
FRAC ±1/16 DEC ± .002						
SHAPE:						
PART NO:						
MIX: RFX 3349-50						
VOLUME:	NO.	DATE	RECORD OF REVISIONS	BY	CHK	

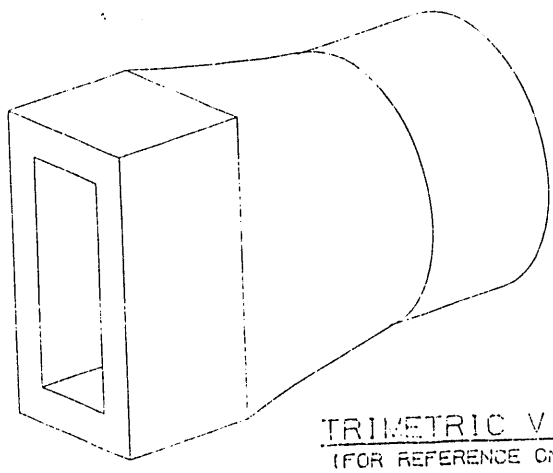
THIS DRAWING IS PROPERTY OF
THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

CYCLONE TUBE (TABULATION)

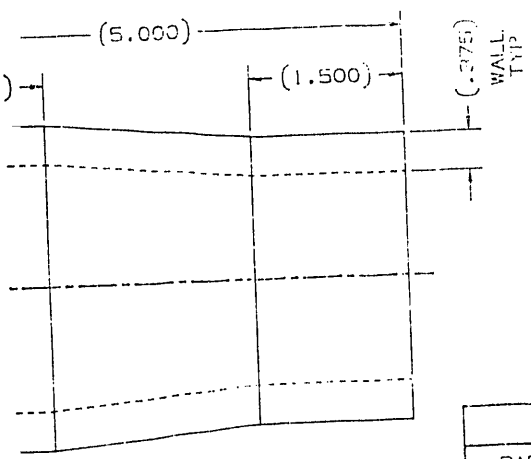
SCALE .25 DATE 5/21/80 DRAWN EJH
TRACED ____ CHECKED ____ APPROVED JJS

31984-C | 0


.375
WALL
TYP
1.500
5.000
1.500
.375
WALL
TYP
(B)
.375
WALL
TYP
A
.375
WALL
TYP
B
(A)
(.375)
WALL
TYP
CAD/CAM



TRIMETRIC VIEW
(FOR REFERENCE ONLY)



TABULATION				
PART #	SHAPE #	DIM "A"	DIM "B"	VOLUME (in^3)
93.2561	AAM-32	1.60	.63	12.65
93.2562	AAM-33	1.97	.78	13.62
93.2563	AAM-34	2.36	.94	14.65

REF. CUSTOMER DWG. NO. CES-577-22-L.

ERANCES
HERWISE SPECIFIED
/16 DEC ± .062

X 3349-5C

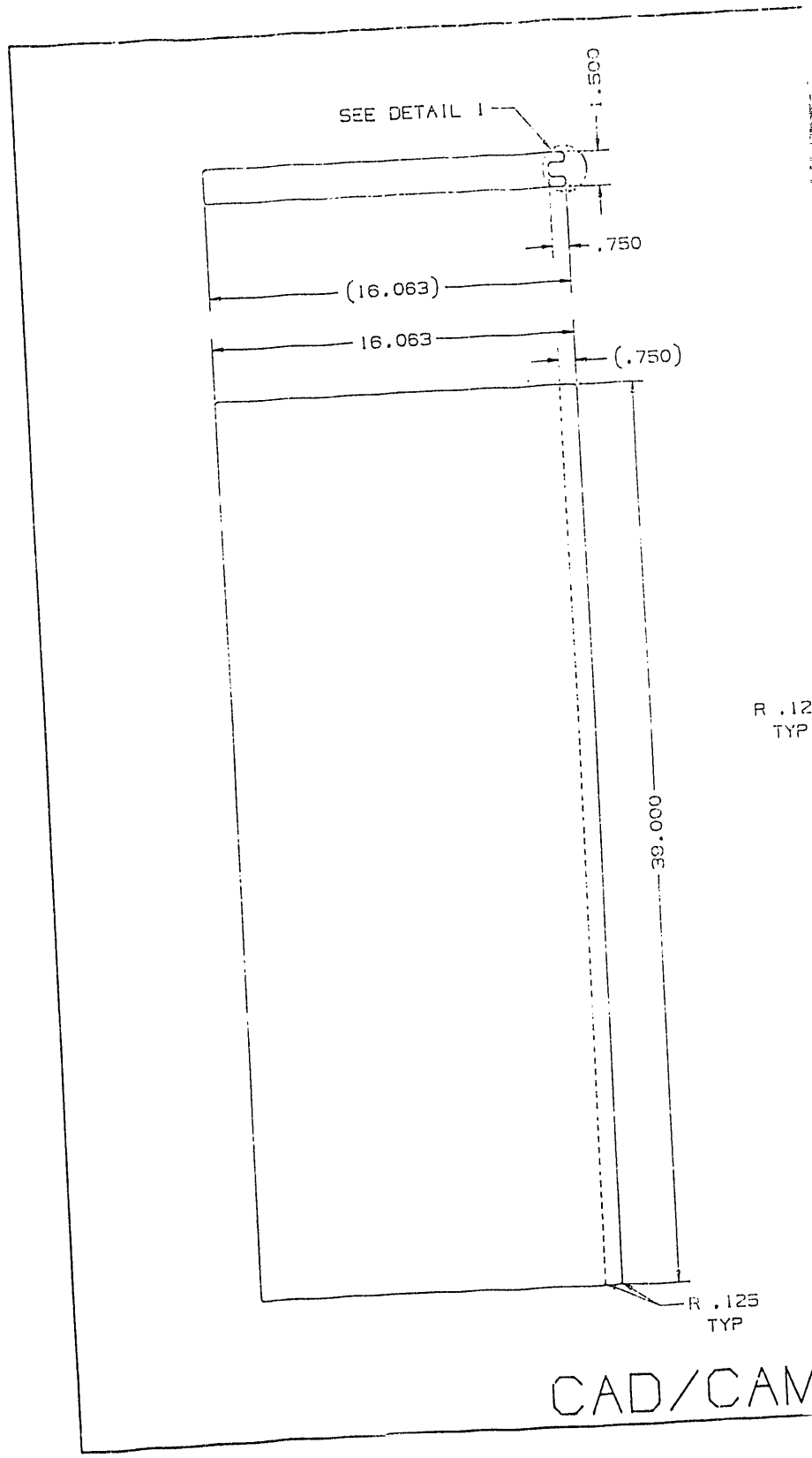
NO.	DATE	RECORD OF REVISIONS	BY	CHK

THIS DRAWING IS PROPERTY OF
THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

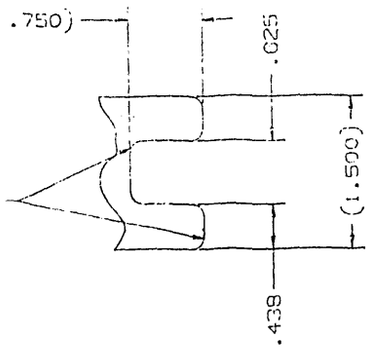
CYCLONE TRANSITION (TABULATION)

SCALE FULL DATE 5/23/90 DRAWN EJH
TRACED ____ CHECKED ____ APPROVED JJS

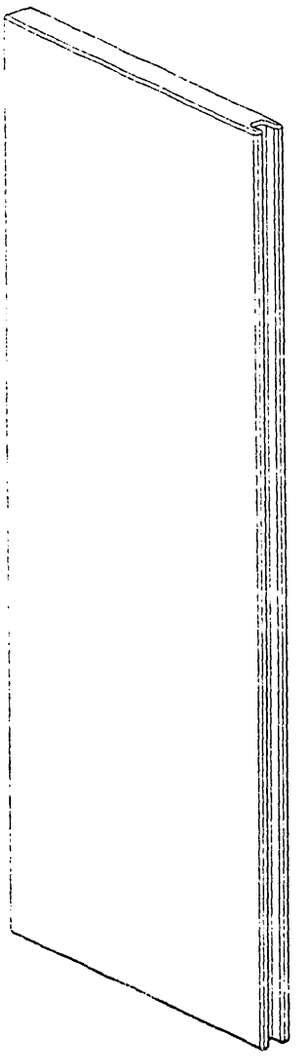
31987-C | 0



CAD/CAM



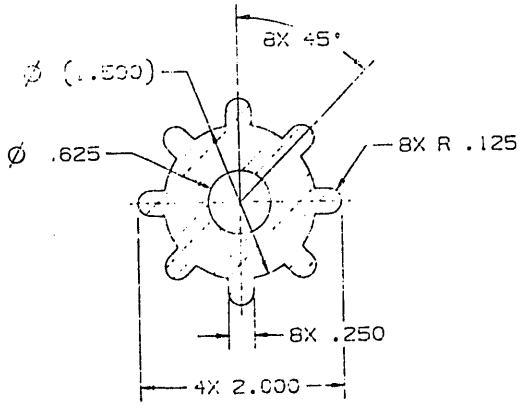
DETAIL 1
SCALE: 1/1



TRIMETRIC VIEW
(FOR REFERENCE ONLY)

TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ±1/16 DEC ± .062						THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION
SHAPE: AAM-07						BAFFLE, BOTTOM
PART NO: 51.3302						
MIX: CFX A-978						SCALE .25 DATE 5/20/90 DRAWN EJH TRACED ____ CHECKED ____ APPROVED JJS
VOLUME: 913.94 in³	NO.	DATE	RECORD OF REVISIONS	BY	CHK	31990-C 0

CAD



SECTION A-A
SCALE: FULL

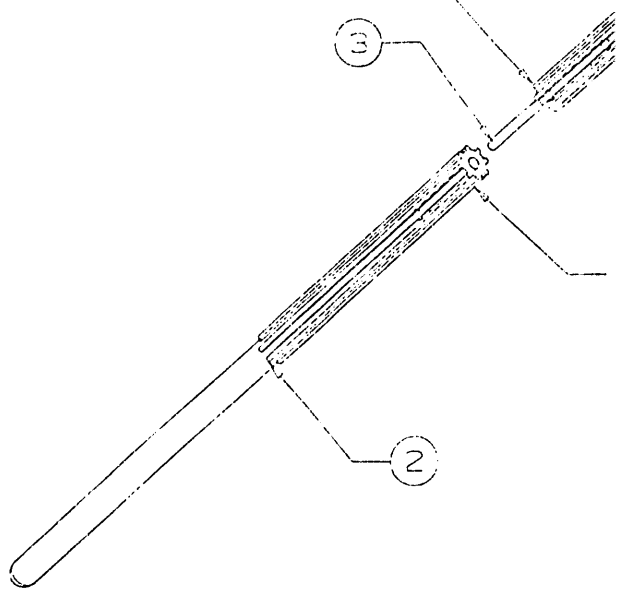
NOTES:

1. FOR ASSEMBLY DRAWING SEE 32179-C.
2. REFERENCE CUSTOMERS DRAWING NUMBER CES-577-2-B-1.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ±1/16 DEC ± .062						THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION
SHAPE: AAW-52-B						ELECTRODE SECTION
PART NO: 93.2613						
MIX: RFX 3349-5C	1	3/27/91	DIMENSION 42.375 WAS 21.625; VOLUME ADJUSTED.	EJH	JJS	SCALE 1/4 DATE 12/27/90 DRAWN EJH TRACED ____ CHECKED ____ APPROVED JJS — 32213-C — 1
VOLUME: 103.04 in³	NO.	DATE	RECORD OF REVISIONS	BY	CHK	

CAM

SEE NOTE 1
(ASSEMBLY PROCE

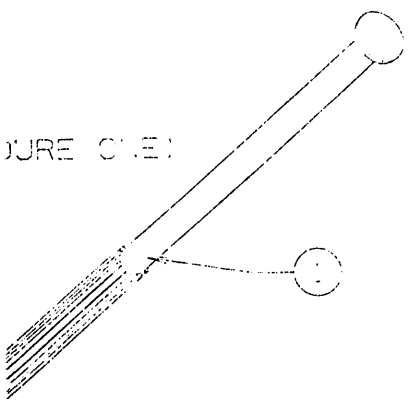


ASSEMBLY VI
(FOR REFERENCE ON

CAD/CAM

TABULATION

ITEM #	PART #	SHAPE #	DWG #
1	93.2612	AAW-52-A	32212-C
2	93.2613	AAW-52-B	32213-C
3	93.2614	AAW-52-C	32214-C



DURE ONE)

SEE NOTE 2
ASSEMBLY PROCEDURE TWO)

NOTES:

1. ASSEMBLY PROCEDURE ONE - ITEM 1 AND ITEM 3 ARE TO BE CAST, THEN CEMENTED IN THE GREEN AND FIRED TOGETHER.
2. ASSEMBLY PROCEDURE TWO - ITEM 2 IS TO BE ASSEMBLED TO ITEMS 1 AND 3 AFTER FIRING WITH BS MORTAR.
3. REFERENCE CUSTOMERS DRAWING NUMBER CES-577-2-B-1.

W
Y)

TOLERANCES
UNLESS OTHERWISE SPECIFIED
± 1/16 DEC ± .062

AAW-52

NO. 93.2615

RFX 3349-EC

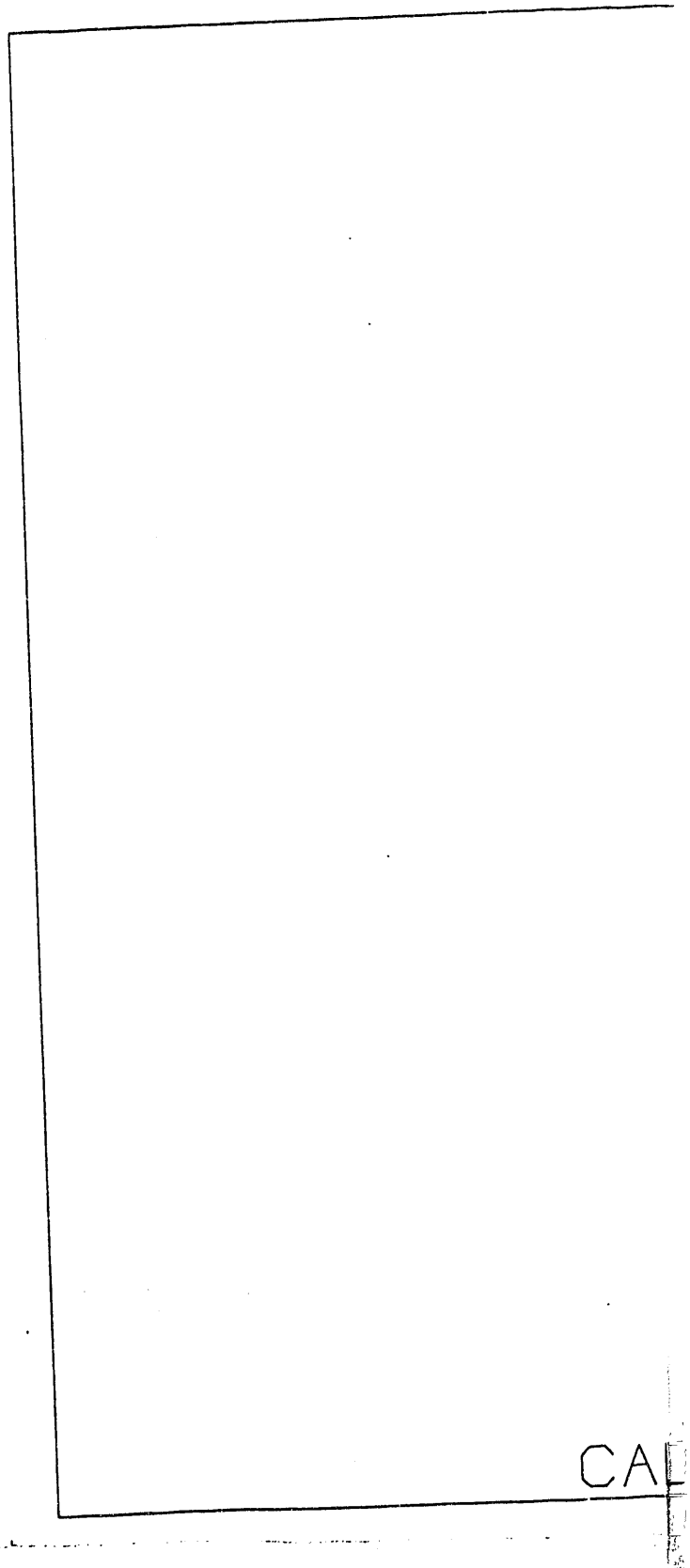
NO.	DATE	RECORD OF REVISIONS	BY	CHK

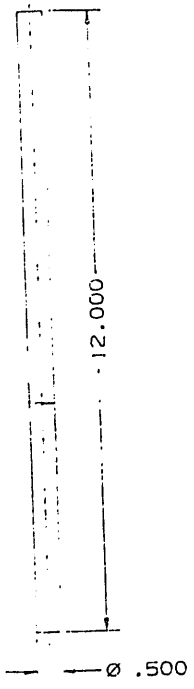
THIS DRAWING IS PROPERTY OF
THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

ELECTRODE

SCALE NONE DATE 12/27/90 DRAWN S.M.
TRACED ____ CHECKED ____ APPROVED J.S.

32179-C | 0


CA



all tolerances in inches

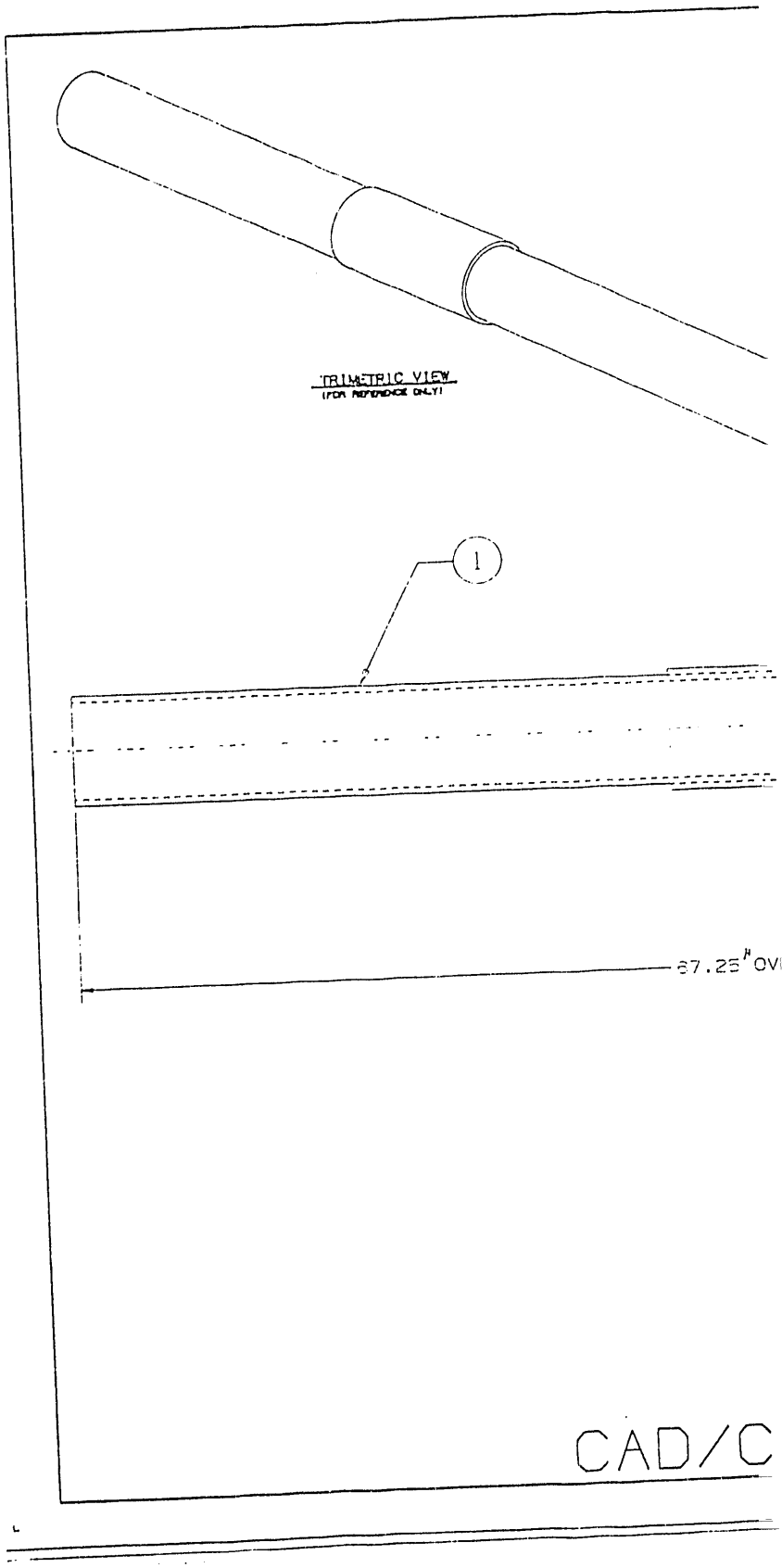
1-22-91

NOTES:

1. FOR ASSEMBLY DRAWING SEE 32179-C.
2. REFERENCE CUSTOMERS DRAWING NUMBER CES-577-2-8-1.

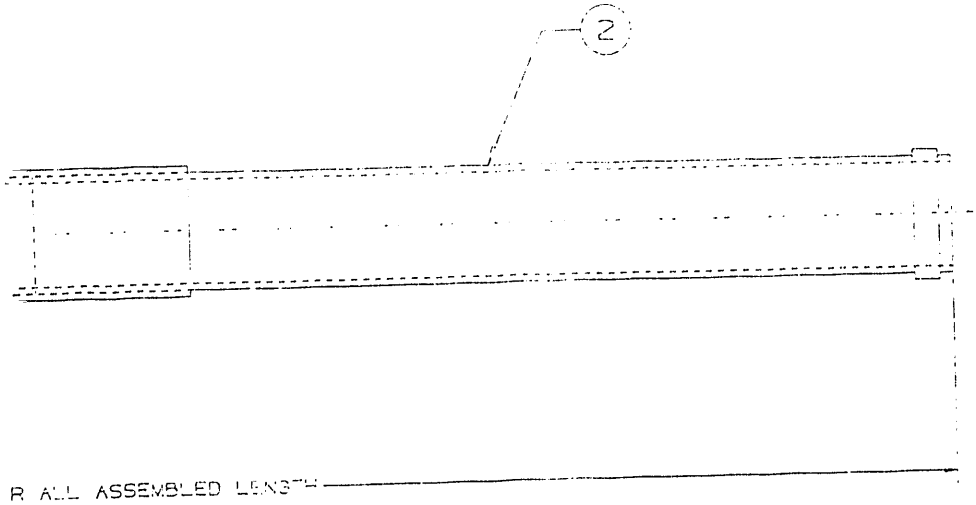
TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ±1/16 DEC ± .002					THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION
SHAPE: AAW-52-C					ELECTRODE DOWEL ROD
PART NO: 93.26!4					
MIX: RFX 3349-5C					SCALE 1/4 DATE 12/27/90 DRAWN EJH TRACED ____ CHECKED ____ APPROVED JJS
VOLUME: 2.36 in³	NO.	DATE	RECORD OF REVISIONS	BY / C-K	32214-C -0

/CAM


TRIMETRIC VIEW
(FOR REFERENCE ONLY)
1
87.25" OVI
CAD/C

BILL OF MATERIAL

ITEM NO.	QTY	PART NO.	DWG. NO.	DESCRIPTION
1	1	99.2606	3217?-C	GROUND ELECTRODE (UPPER HALF)
2	1	99.2605	3217?-C	GROUND ELECTRODE (LOWER HALF)



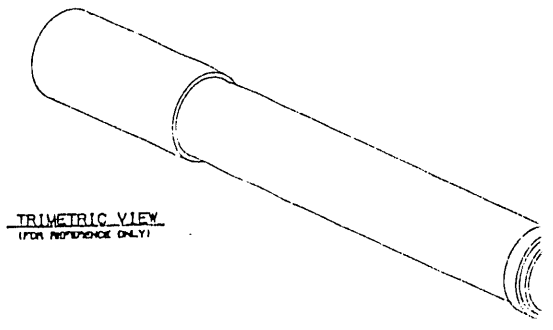
1-22-91

NOTES:

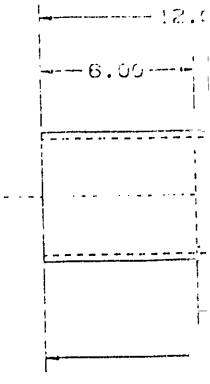
1. ITEM 1 AND 2 ARE TO BE CEMENTED TOGETHER IN THE FIELD.

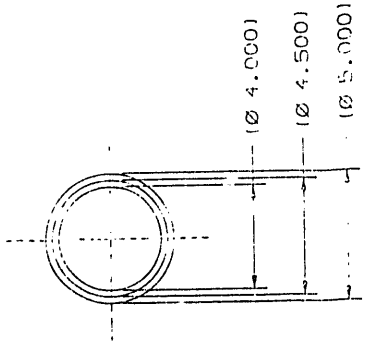
R-C 4/91

TOLERANCES UNLESS OTHERWISE SPECIFIED: FRAC ± 1/16 DEC ± .062			THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION	
SHAPE:			GROUND ELECTRODE ASSEMBLY	
PART NO:				
MIX:			SCALE 1/4 DATE 12/12/90 DRAWN SJV TRACED ____ CHECKED ____ APPROVED JS	3217?-C 0
VOLUME:	NO. DATE	RECORD OF REVISIONS BY CHK		



TRIMETRIC VIEW
(FOR REFERENCE ONLY)



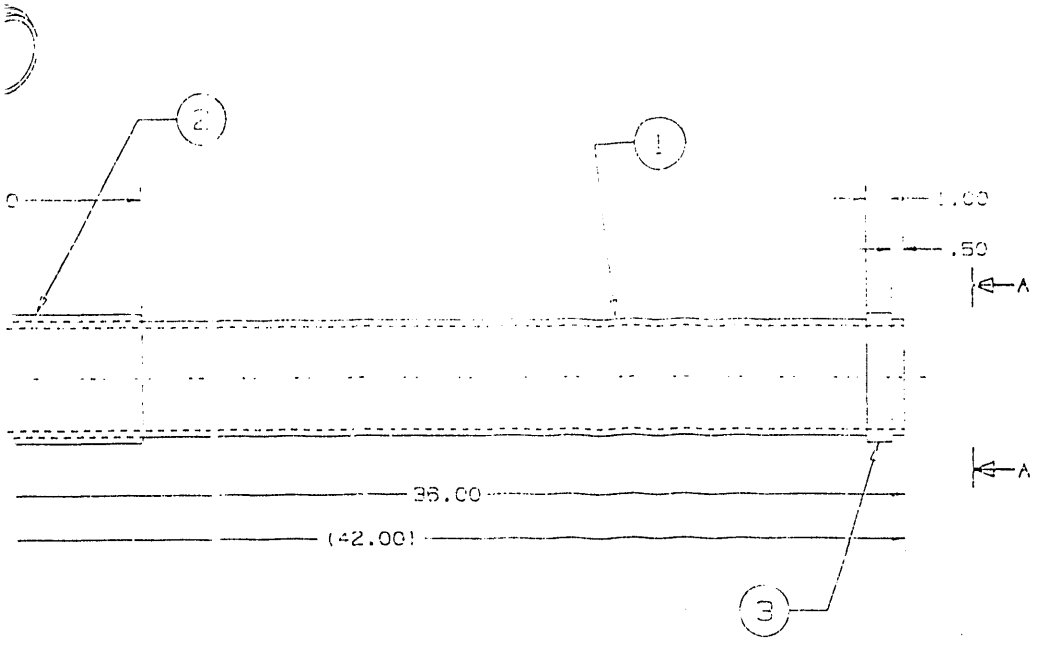


VIEW A-A

CAD/CAM

BILL OF MATERIAL

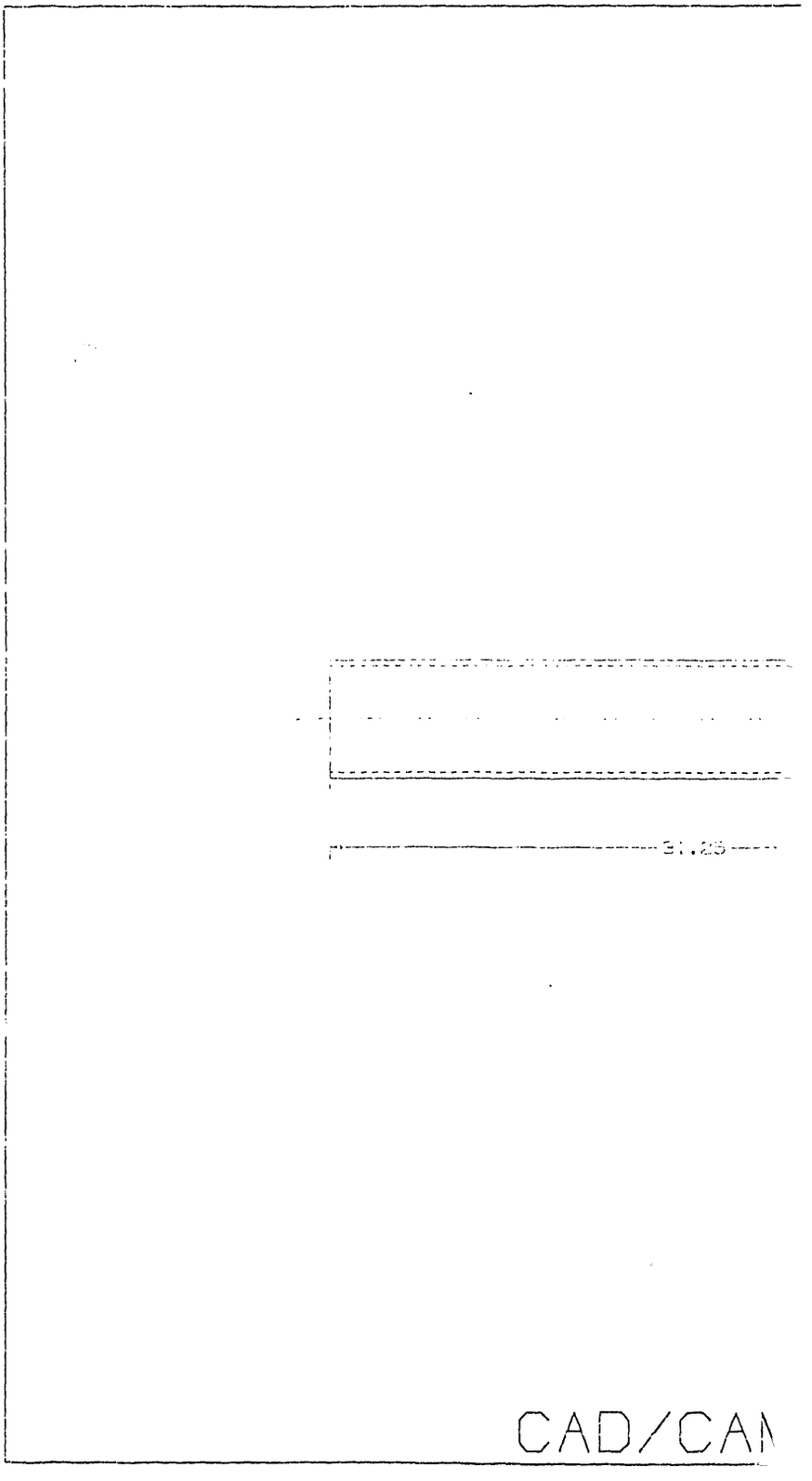
ITEM NO.	QTY	DESCRIPTION
1	1	MAKE FROM PART NO. 84.0008, SHAPE NO. XB-20
2	1	MAKE FROM PART NO. 93.2357, SHAPE NO. YU-17
3	1	MAKE FROM PART NO. 93.2357, SHAPE NO. YU-17

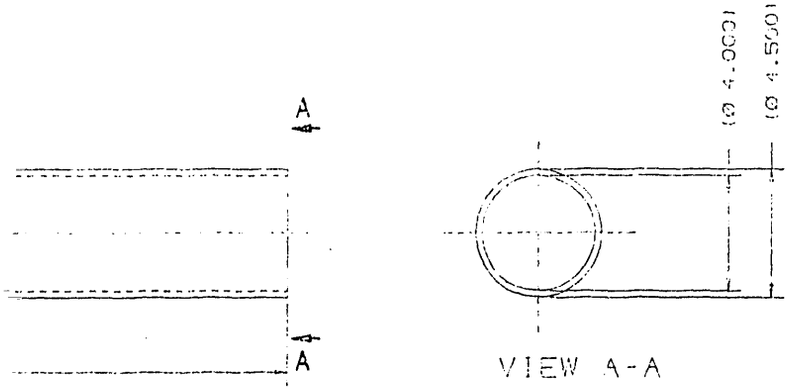


NOTES:

1. THESE PARTS ARE TO BE CEMENTED TOGETHER AS SHOWN, THEN REFIRED TO FORM LOWER SECTION OF ELECTRODE.
2. GRIND INSIDE DIAMETER OF ITEMS 2 AND 3 TO FIT OVER OUTSIDE DIAMETER OF ITEM 1.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ± 1/16 DEC ± .062				THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION	
SHAPE: AAW-03-A				GROUND ELECTRODE (LOWER HALF)	
PART NO: 93,2605					
MIX: 265				SCALE 1/4 DATE 12/12/93 DRAWN SDW TRACED ____ CHECKED ____ APPROVED JS	32172-C 0
VOLUME: 265	NO.	DATE	RECORD OF REVISIONS BY CHK		


31.25
CAD/CA

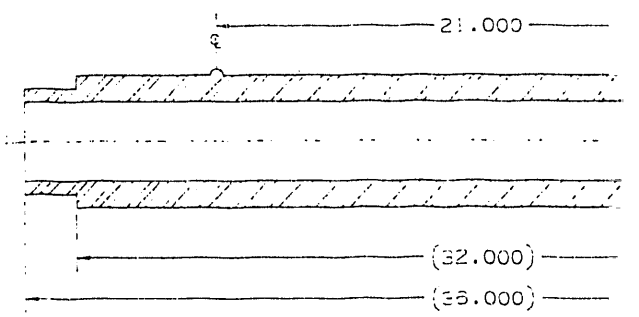


Ok
4-7-91

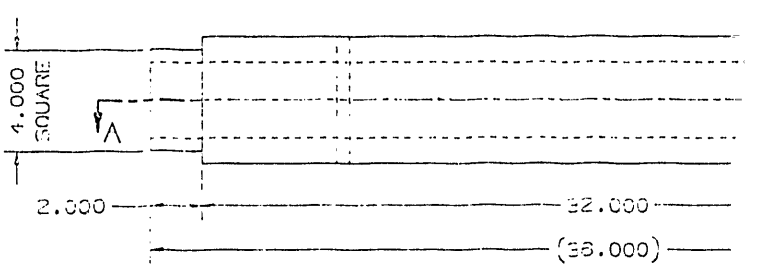
NOTES:

1. THIS PART IS TO BE MADE FROM PART NO. 94.0009, SHAPE NO. XB-20 AND CUT AS SHOWN.

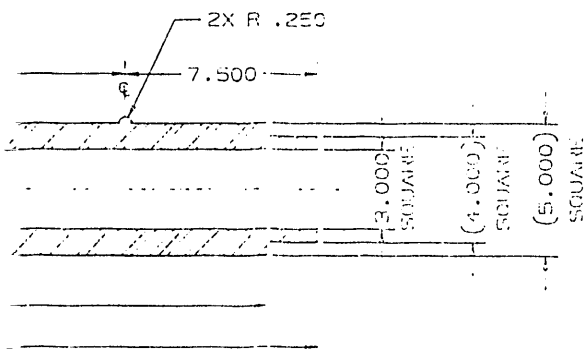
TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ±1/16 DEC ± .002						THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION
SHAPE: AAW-03-B						GROUND ELECTRODE (UPPER HALF)
PART NO: 93.2606						
MIX:	1	3/27/91	Ø4.500 WAS Ø5.000; Ø4.000 WAS Ø4.500	EJH	JJS	SCALE 1/4 DATE 12/12/90 DRAWN SGM
VOLUME:	NO.	DATE	RECORD OF REVISIONS	BY	CHK	TRACED CHECKED APPROVED JS — 32173-C 1

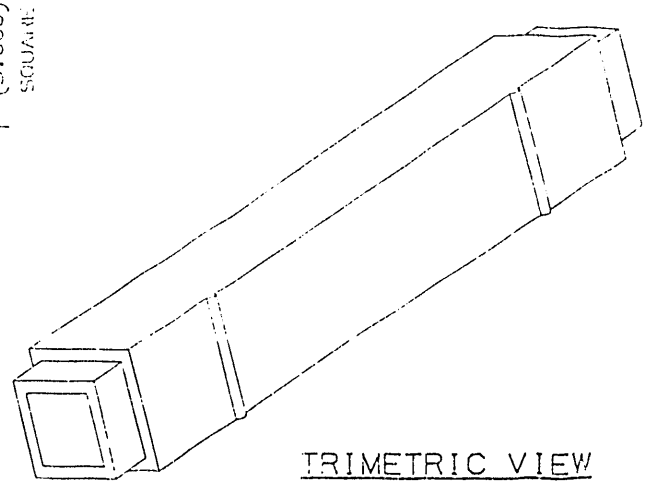


SECTION A-A

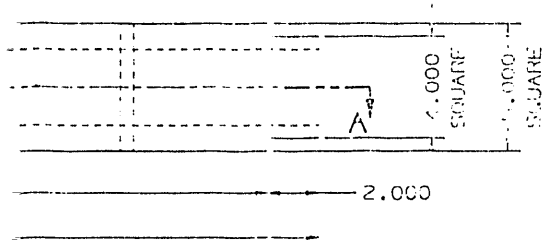


CAD/CAM





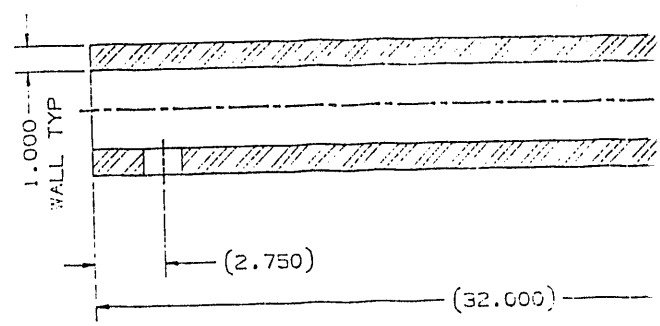
TRIMETRIC VIEW
(FOR REFERENCE ONLY)



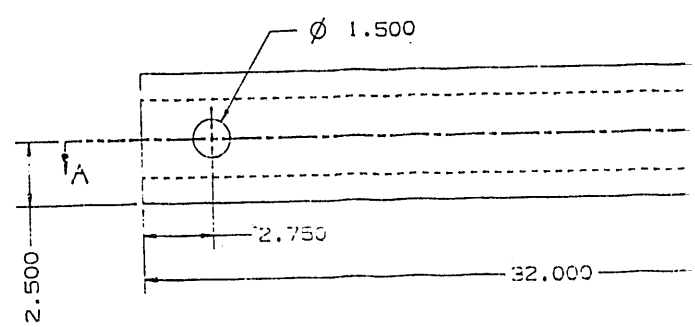
NOTES:

1. REF. CUSTOMER PART NO. CES-577-2-B-3 PER CUSTOMER DWG. NO. CES-577-2-B; REV. 1.
2. NO SHARP EDGES, R .125 TYP.

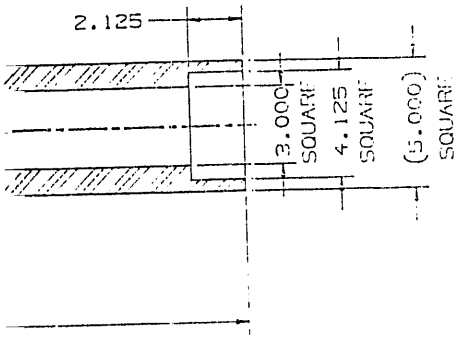
TOLERANCES UNLESS OTHERWISE SPECIFIED: FRAC ± 1/16 DEC ± .062		THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION	
SHAPE: AAM-13-1			
PART NO: 51.3307		SUPPORT BEAM, MIDDLE	
MIX: CFX A-978	1 10/11/90 36" LG. WAS 32" LG.	SCALE .25 DATE 6/4/90 DRAWN EJH	
VOLUME: 540.98 in³	NO. DATE RECORD OF REVISIONS BY CHK	TRACED ____ CHECKED ____ APPROVED JJS	32000-C 1

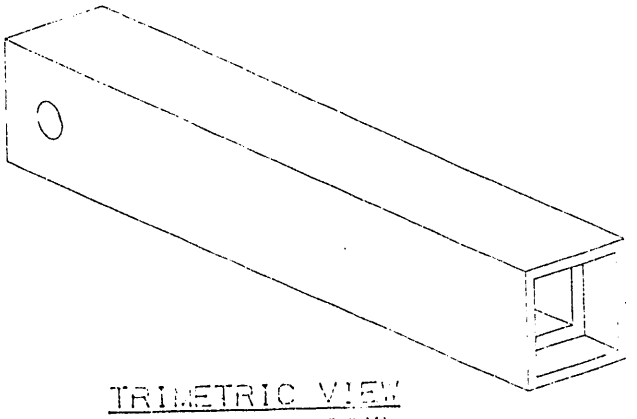


SECTION A-A



CAD/CAM





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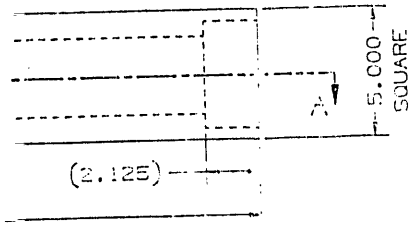
(FOR REFERENCE ONLY)



NOTES:

1. REF. CUSTOMER PART NO. CES-577-2-B-3 PER CUSTOMER DWG. NO. CES-577-2-B; REV. 1.
2. NO SHARP EDGES, R .125 TYP.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ±1/16 DEC ± .062						THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION	
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PART NO: 51,3306							
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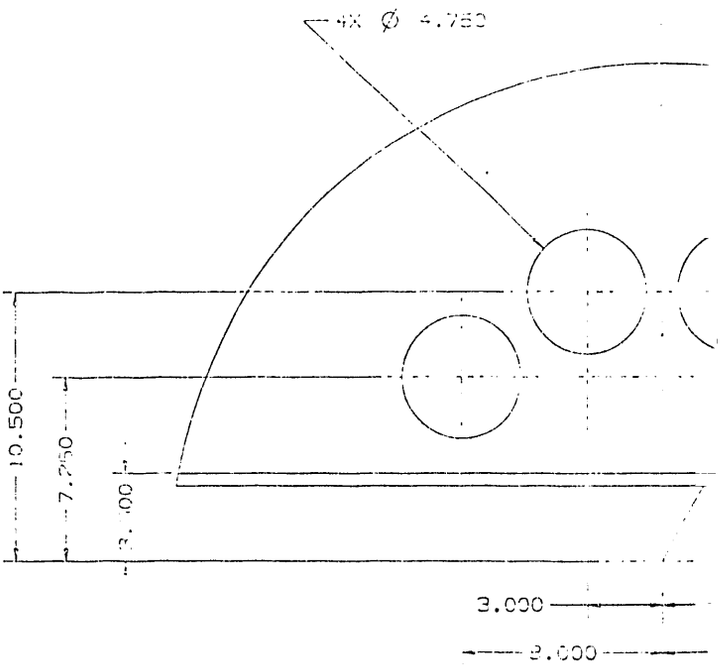

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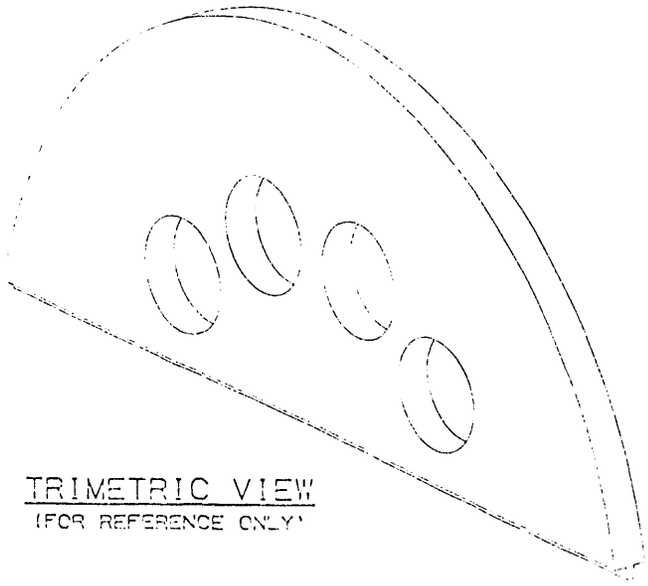

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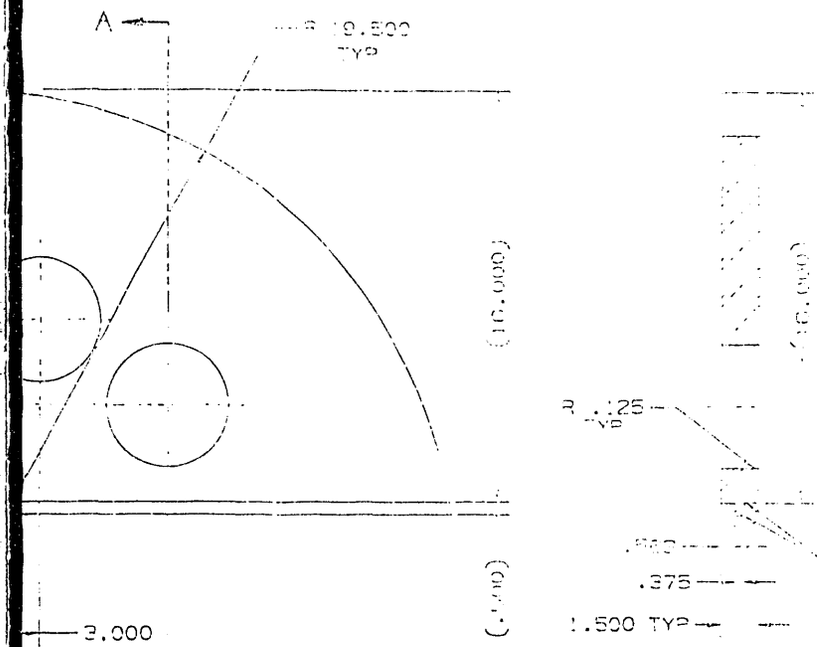
(FOR REFERENCE ONLY)



SECTION A-A

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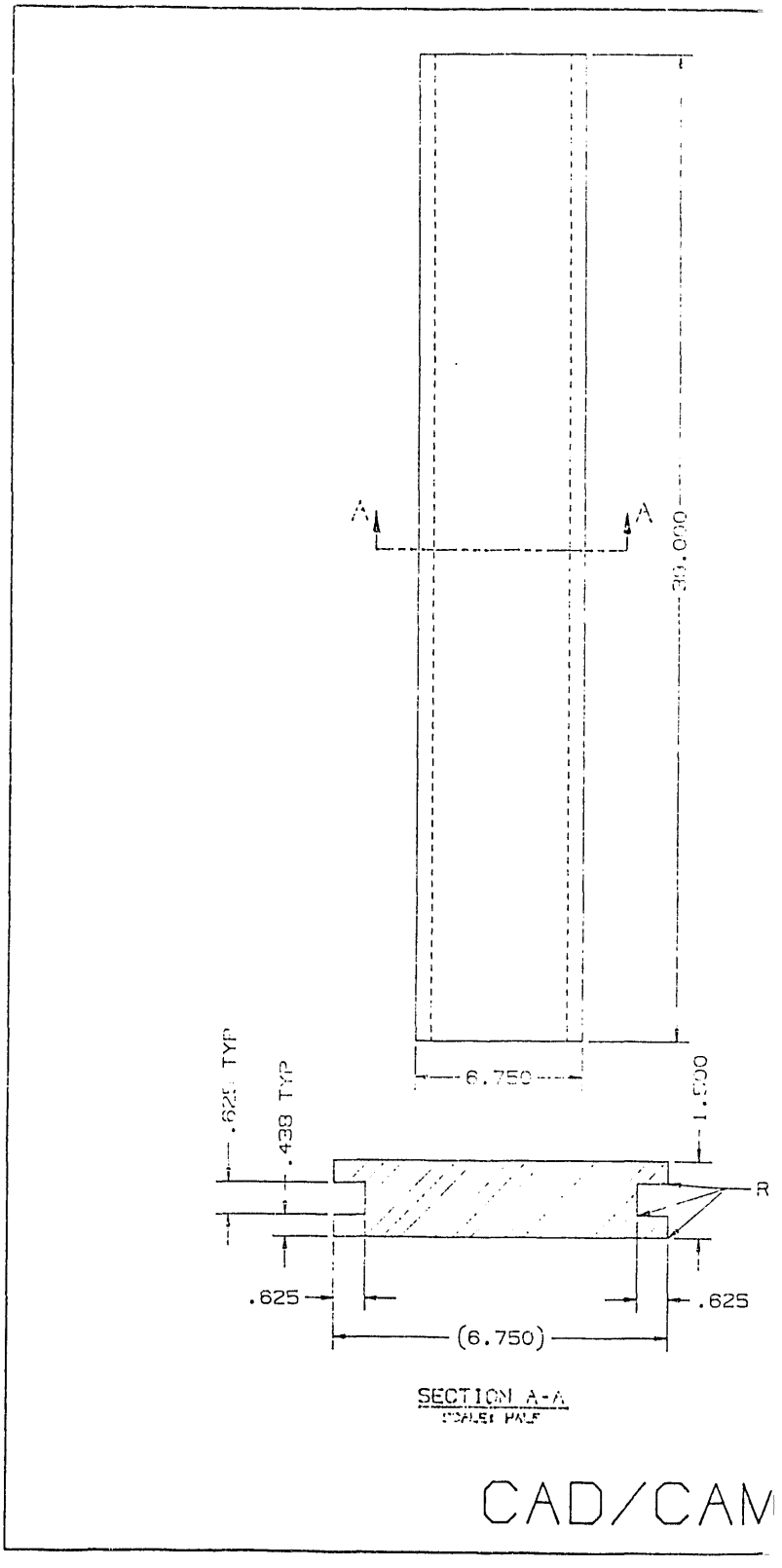

SECTION A-A
SCALE: FULL

CAD/CAM

TRIMETRIC VIEW
(FOR REFERENCE ONLY)

.125
YP

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CUSTOMER DWG. NO. CES-577-2-8; REV. 1.

TOLERANCES UNLESS OTHERWISE SPECIFIED FRAC ± 1/16 DEC ± .062						THIS DRAWING IS PROPERTY OF THE CARBORUNDUM COMPANY PERFORMANCE REFRACTORIES DIVISION	
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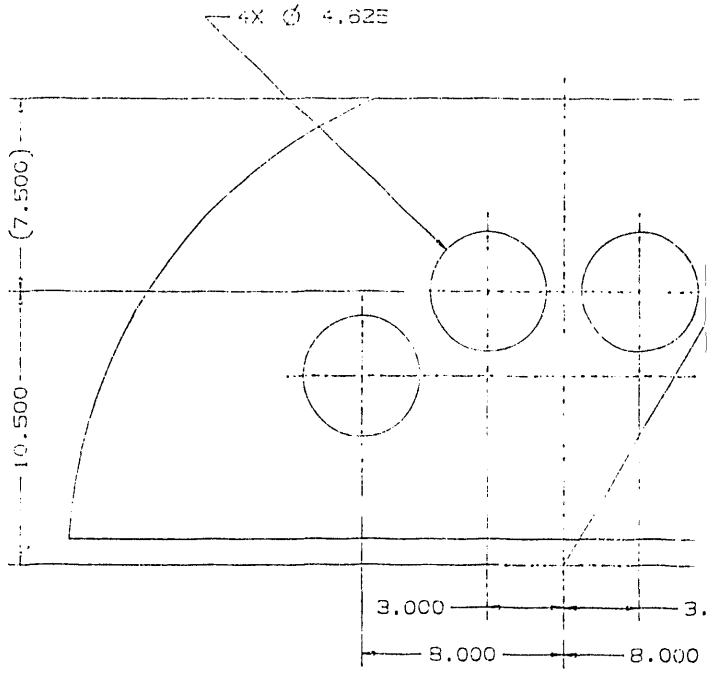
MIX: CFX A-978							
VOLUME: 384.72 in³	NO.	DATE	RECORD OF REVISIONS	BY	CHK	SCALE .25 DATE 8/4/90 DRAWN EJH TRACED ____ CHECKED ____ APPROVED JJS	31998-C 0



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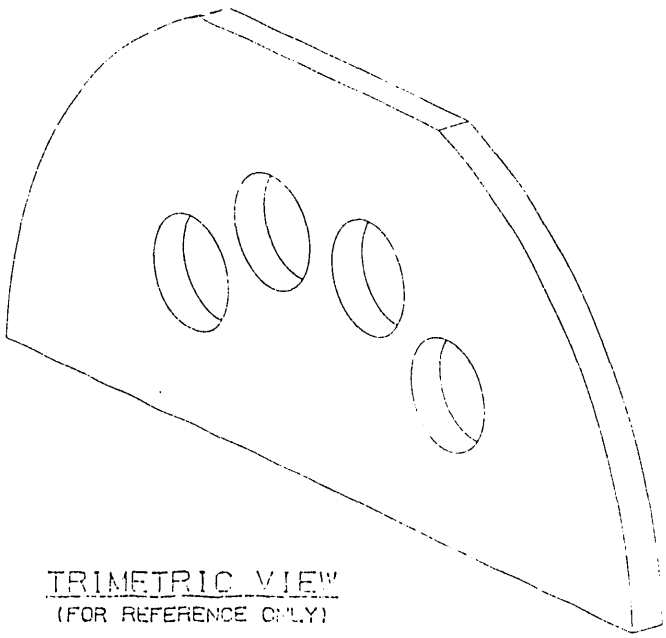

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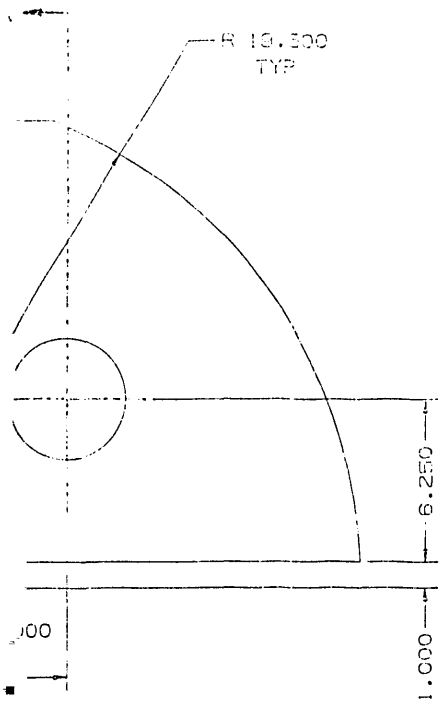
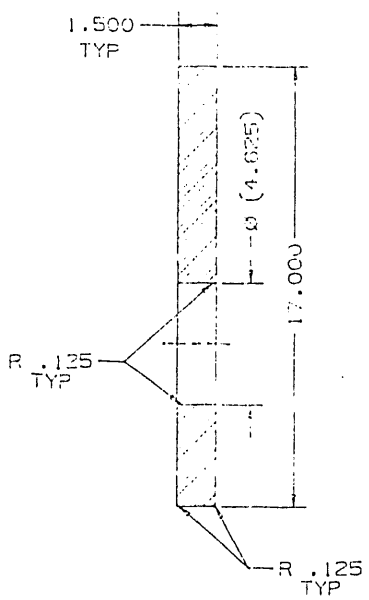
(FOR REFERENCE ONLY)





SECTION A-A

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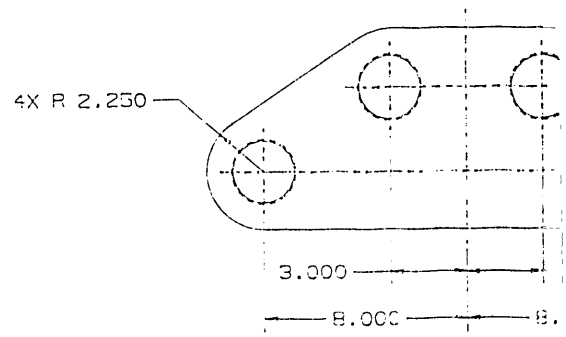
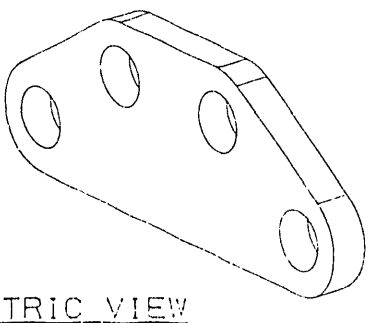
VOLUME: 713.98 in³	NO.	DATE	RECORD OF REVISIONS	BY	CHK	



CAD/C



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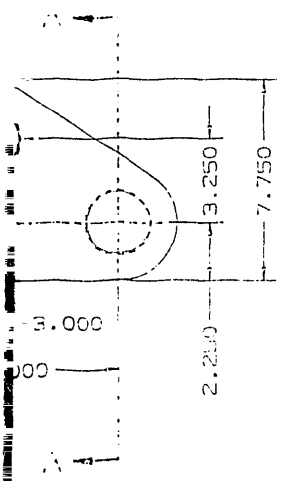
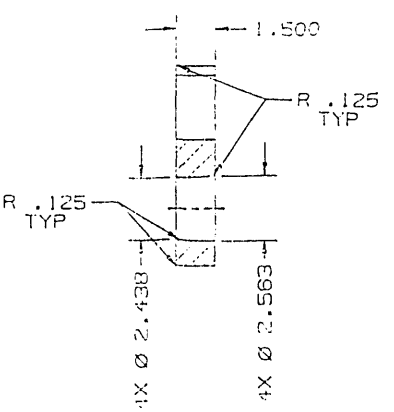
(FOR REFERENCE ONLY)





SECTION A-A

REF. CUSTOMER PART NO. CES-577-2-8-6 PER
CUSTOMER DWG. NO. CES-577-2-8; REV. 1.

AM

TOLERANCES						
UNLESS OTHERWISE SPECIFIED						
FRAC ±1/16 DEC ± .062						
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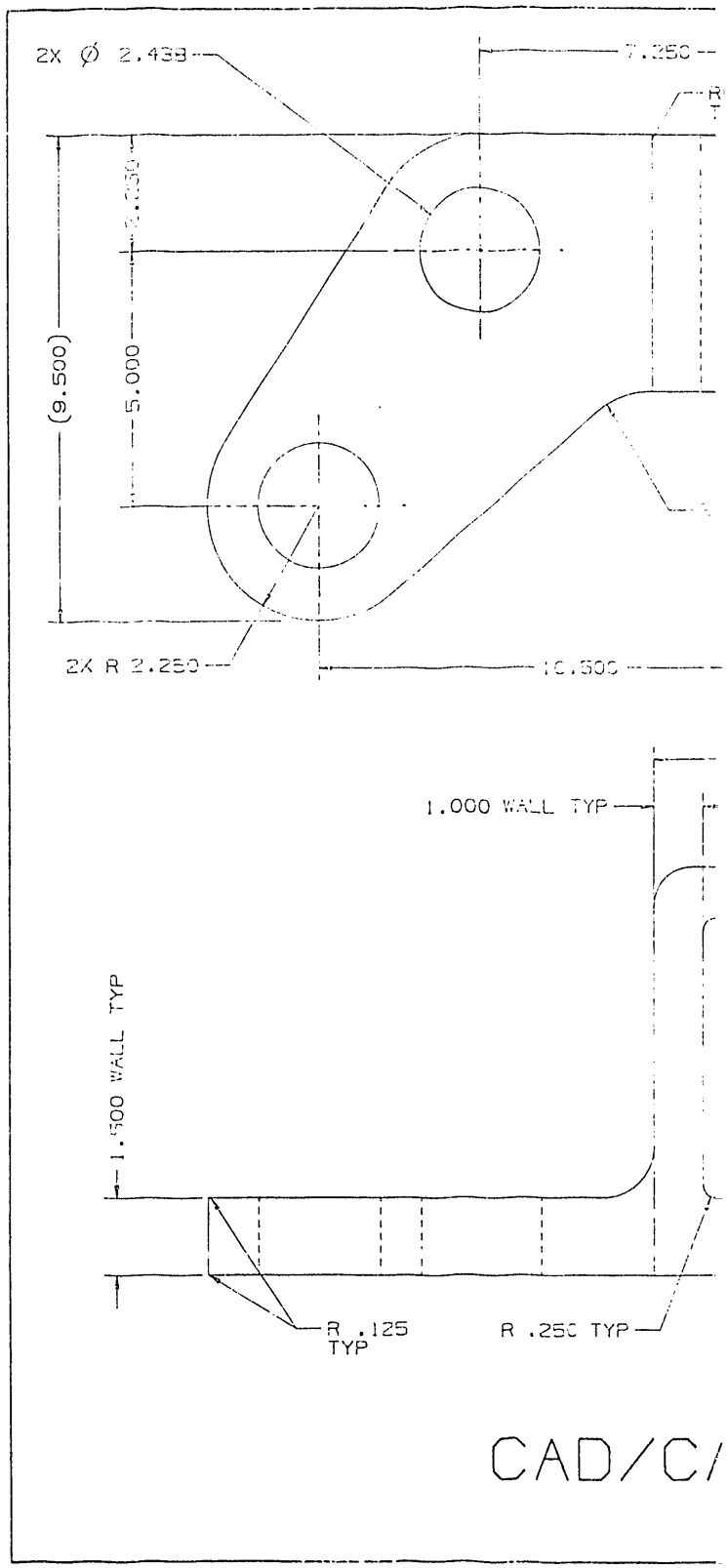
PART NO: 51.3310						
MIX: CFX A-978						
VOLUME: 162.51 in^3	NO.	DATE	RECORD OF REVISIONS	BY	CHK	

THIS DRAWING IS PROPERTY OF
THE CARBORUNDUM COMPANY
PERFORMANCE REFRACTORIES DIVISION

D.E. GUIDE PLATE

SCALE .25 DATE 5/30/90 DRAWN E.H.
TRACED _____ CHECKED _____ APPROVED J.J.S.

31993-C | 0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7.250
2.250
(9.500)
5.000
2X R 2.250
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1.000 WALL TYP
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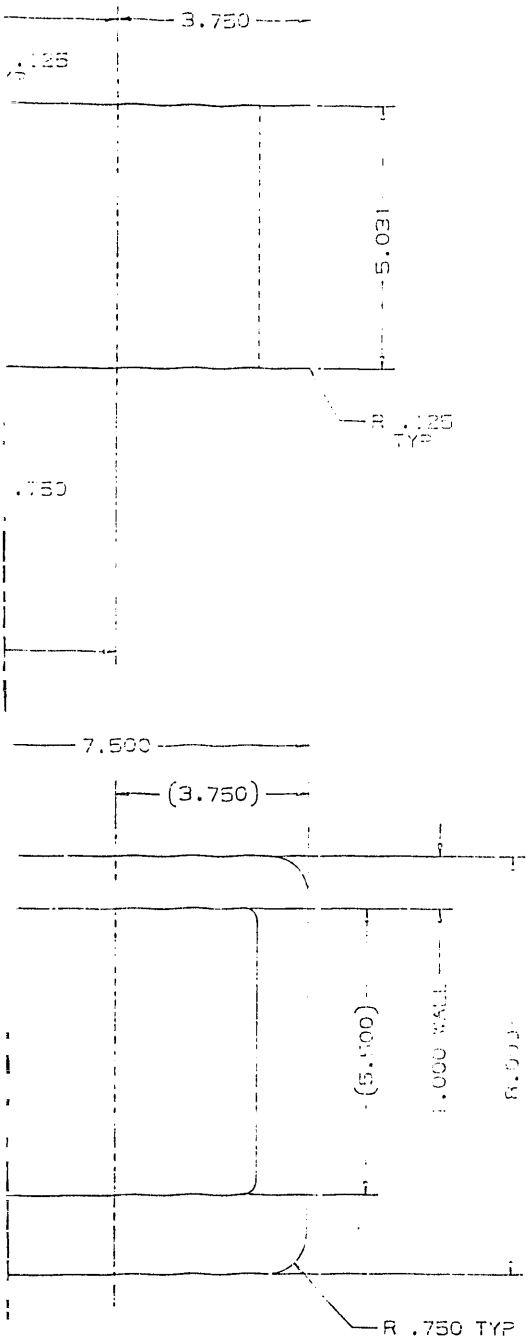
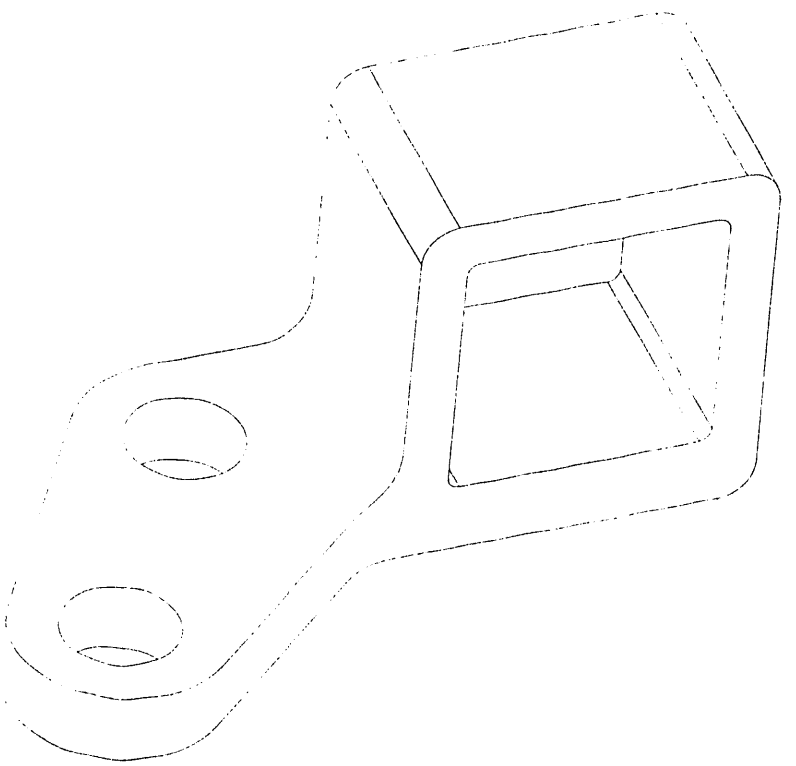
R .250 TYP
CAD/C





ISOMETRIC VIEW
(FOR REFERENCE ONLY)

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VOLUME: 218.23 in³	NO.	DATE	RECORD OF REVISIONS	BY	CHK
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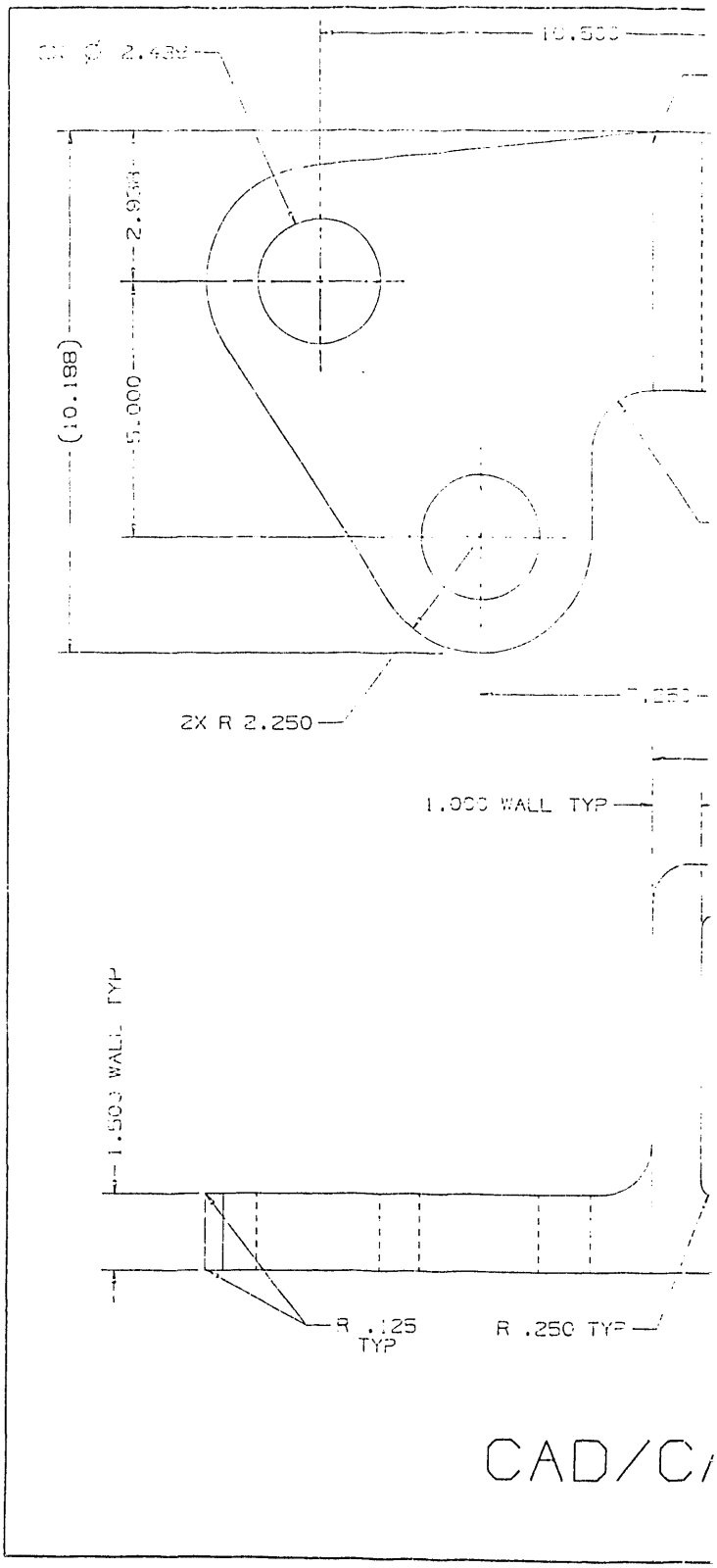
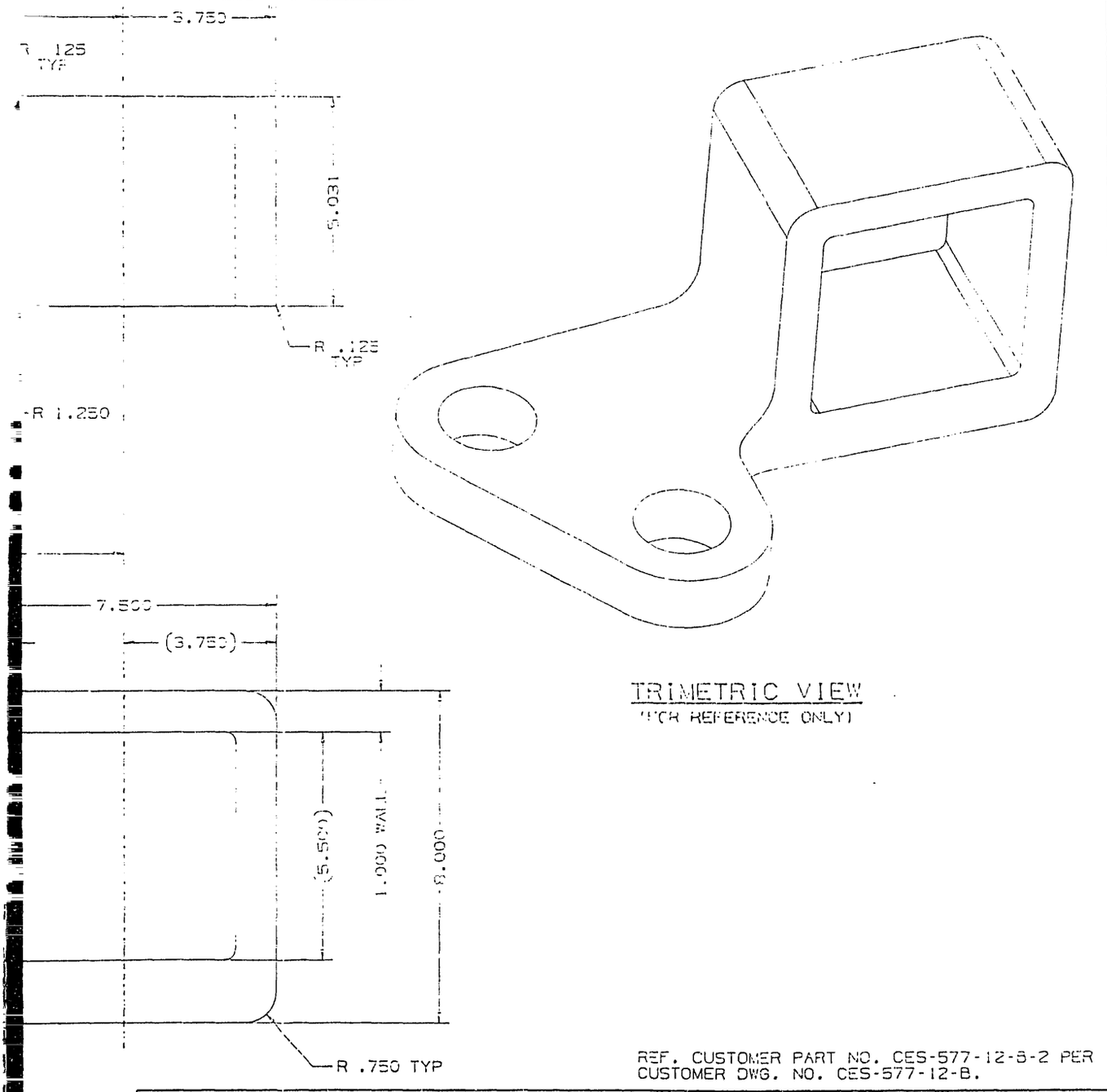

10.500
2.938
(10.188)
5.000
2X R 2.250
1.000 WALL TYP
1.500 WALL TYP
R .125
TYP
R .250 TYP
CAD/C



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(FOR REFERENCE ONLY)

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SHAPE: AAM-19					
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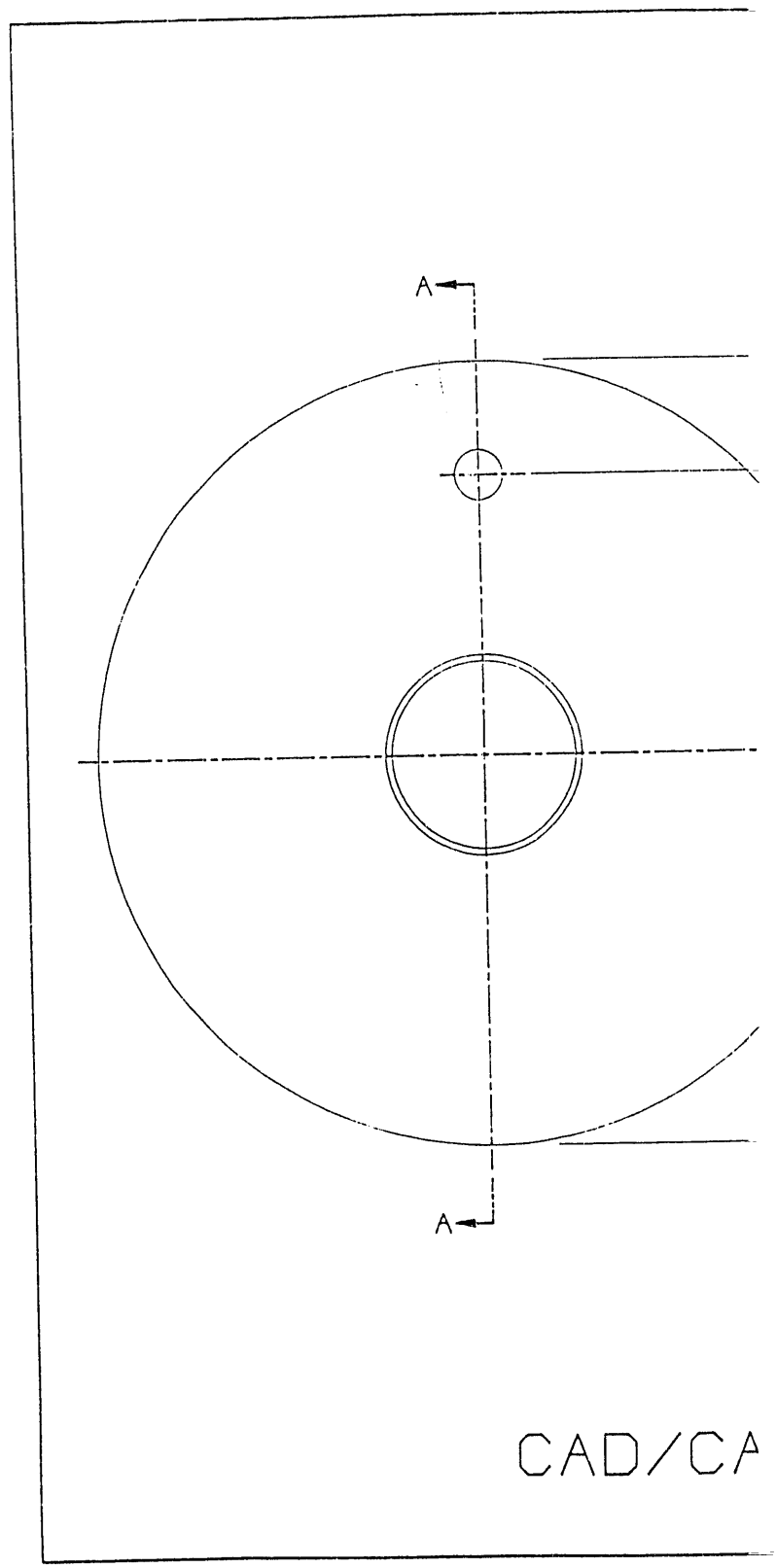
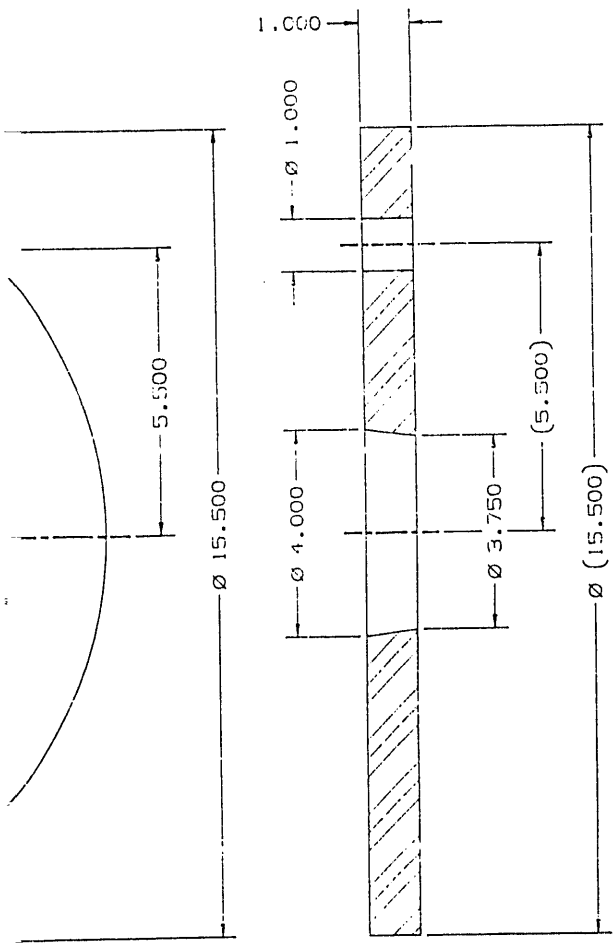
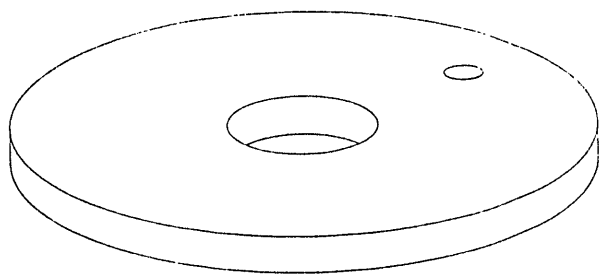
AM


A
A
CAD/CA



SECTION A-A



TRIMETRIC VIEW
(FOR REFERENCE ONLY)

REF. CUSTOMER DWG. NO. CES-577-22-L.

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SHAPE: AAM-22						cyclone SUPPORT PLATE
PART NO: 93.2551						SCALE HALF DATE 5/21/80 DRAWN EJH TRACED ____ CHECKED ____ APPROVED JJS — 31985-C — 0
MIX: RFX 3349-5C						
VOLUME: 176.11in³	NO.	DATE	RECORD OF REVISIONS	BY	CHK	

APPENDIX C

PES-2000 PULSE ENERGIZATION SYSTEM

ION PHYSICS CORPORATION

MANUAL

PES-2000 PULSE ENERGIZATION SYSTEM

FOR AGGLOMERATION PROJECT

PREPARED BY:

ION PHYSICS CORPORATION

ATKINSON, NH 03811

TO:

RESEARCH-COTTRELL, EST DIV

SOMERVILLE, NJ 08876

PES-2000 MANUAL

HAZARDS

The PES-2000 precipitator pulse generator, like the standard TR sets in precipitators, generate very high voltages which can be fatal. Safety precautions to insure, that all power is off and the equipment is properly grounded during inspection or service must be followed. Some specific hazards are listed below. This list is by no means conclusive, but serves as an aid for proper safety procedures.

1. SHORTING PROCEDURE. It is absolutely imperative that power is removed from any assembly before opening for inspection or maintenance. Both, the power to the base TR set and the PES-2000 system must be off and locked off. In addition when any assembly is opened for inspection or maintenance it is necessary to use shorting sticks to ground out all terminals before touching them by hand. While work is ongoing, the shorting sticks must stay in place on the high voltage terminals. Never rely on system shorts and interlocks alone.

2. HIGH VOLTAGE CAPACITOR. The high voltage capacitor in the pulse driver requires extra care, because neither side of it is connected to ground and it can store lethal voltage long after the prime power has been turned off. Consequently two grounding sticks must be used, one on each end, to discharge the capacitor. Figure 1 shows the proper procedure to short out this capacitor.

3. INTERCONNECTION. The PES-2000, the TR set and the precipitator are all connected together. Both the TR set and the PES-2000 system must be disconnected from power, before the different assemblies can be shorted out.

4. ELECTRONICS IN THE CONTROL CABINET. It is not safe to touch the electronics in the control cabinet even if the power to it is turned off as long as the precipitator TR is on. A spark in the precipitator can couple a transient of lethal voltage through the high voltage capacitor into the control cabinet of the PES-2000.
The same is true for the TR set. It is not safe as long as the PES-2000 system is operating, because of the coupling effect between pulser and precipitatator.

5. INTERLOCKS. It is important to use interlocks. These interlocks should provide access to the high voltage portion of the PES-2000, the TR set and the precipitator only after power to the TR set and the PES-2000 has been turned off. Another interlock should automatically turn off the power to the PES-2000 system, when power to the TR set has been removed for any reason.

6. COVERS. The access covers on the pulse driver top, the transformer, and the doors on the pulse driver and the electronics cabinet must be closed securely when any part of the precipitator system is energized. Some parts in the pulse driver tanks and some in the transformer and the electronics cabinet are energized from the precipitator TR set even if the pulse system is switched off.

7. SHORTING OUT THE PRECIPITATOR When working on the precipitator it is imperative to turn off both the TR set and the PES-2000 system. Further it is absolutely necessary to use shorting sticks while working on the precipitator. Never rely on the system shorts alone.

8. HIGH VOLTAGE CABLES Some installations use high voltage cables. If they are used, remember they carry high voltages, up to 65,000 volts. They can be dangerous if punctured, cut, or damaged in any way. Furthermore, they can catch fire if repeated discharges are allowed to occur through a punctured cable insulation or along a surface track.

9. DRIVER ELECTRONICS HAS LETHAL VOLTAGES It is easy to remember that high voltage is on the precipitator and the pulse driver. But the driver electronics also has lethal voltages. It has the 208 VAC 3 phase line and it has a 250 VDC supply. Furthermore it has capacitor banks charged to 250 VDC and 400 VDC. Any of these supplies can be lethal, and any of the capacitors can store lethal voltage long after the prime power is off.

10. ELECTRONICS COMMON NOT GROUND The DC power common in the electronics cabinet is not ground. It rides on the 3 phase input voltage. That common has lethal voltages on it.

11. FIRE Both the pulse driver and the electronics cabinet have oil filled capacitors. In the unlikely event a capacitor should become overheated, they can burn. Furthermore, there is a possibility an overheated capacitor could burst into flames when the door is opened and it gets additional oxygen. The same is true of the high voltage transformer. Consequently it is necessary to have electric grade fire extinguishers in easy reach at all times.

12. EQUIPMENT GROUNDS The frames of all equipment should be securely grounded. If one should become ungrounded, it could become energized with lethal voltages.

SECTION 1

INTRODUCTION

1-1 GENERAL

Pulse energization is the application of short duration, high voltage pulses onto the base voltage of a conventionally energized precipitator. The base voltage, from the normal TR set, is usually set below the onset of sparking. The pulse voltage superimposed on the base voltage generates a high density ion cloud uniformly distributed along the discharge electrode in the precipitator. The high density ion cloud produced by the pulse voltage enhances particle charging above normal levels and thereby improves the effectiveness of the electrostatic precipitator.

The benefits of pulse energization are most pronounced where the electrostatic generator is poorly energized. A classical example of a poorly energized precipitator is one where voltage has been reduced because of high resistivity dust and, perhaps, back corona.

Another way to look at pulse energization of electrostatic precipitators is that it gives another degree of freedom in the electrical control of the precipitation process. The pulse amplitude and repetition rate can be adjusted to provide the optimum amount of corona current and the DC base voltage can be independently adjusted to a desired sparking rate. Previously, the only control was precipitator voltage and it may not have been possible to reach an optimum setting corona production and sparking.

The primary components of the pulse energization system are the pulse driver, the high voltage transformer, and the electronics cabinet. The pulse driver, usually located on the precipitator roof, generates the high voltage pulses. The high voltage transformer is often, but not necessarily, located close to the pulse driver. It provides the high voltage to the pulse driver. The electronics cabinet provides energization to the high voltage transformer. It includes the system controls for operator use, mostly on-off switching, and the control for pulse amplitude and repetition rate.

The base voltage is provided by a seperate TR set. An inductor and capacitor are installed between the TR set and the precipitator to keep the high voltage pulses from entering the TR set. Normal operation of the TR set is not changed, however. It can be operated without the pulse driver being on.

This manual deals with the PES-2000 pulse driver system. It does not cover the precipitator or the operation of the DC TR set except as they relate directly to the operation of the pulse driver.

1-2 SPECIFICATIONS

General

The PES-2000 system consists of one pulse charger, one high voltage transformer, and one electronics cabinet with the appropriate interconnection cables.

Input Power

208 VAC line to line, 3 phase, 60 Hz, 14 amps. Line inrush normally is 60 amps for up to 3 cycles at turn on and fault reset. Input voltages between 190 VAC and 250 VAC can be accommodated with tap adjustments in the electronics cabinet. The electronic circuit automatically accomodates voltage variations of plus or minus 7%.

Pulse Rate

Pulse rate is adjustable from 50 to 150 pulse per second with an adjustment inside the electronics cabinet. Once set, the rate is constant within 5% for all effects of aging and temperature.

Environment, Pulse Driver and High Voltage Transformer

Temperature from -40 degrees C to +60 degrees C storage. Temperature from -40 degrees C to +50 degrees C operating. The pulse driver and the high voltage transformer are suitable for outdoor installation.

Environment, Electronics Cabinet

Temperature from -40 to +60 degrees C storage. Temperature from -40 to +35 degrees C operating. The electronics cabinet is not designed for outdoor installation and can stand neither weather nor direct sunlight.

Physical

Pulse driver size: 28" x 28" x 72"
Pulse driver weight: 465 lb.
High Voltage transformer size: 18" dia x 48" h.
High Voltage transformer weight: 800 lb.
Electronic cabinet size: 25" x 30" x 72"
Electronic cabinet weight: 680 lb.

SECTION 3

OPERATION

The operation of the pulse energization system is largely automatic so there are few controls. This section gives a list of controls and indicators and describes their functions. All are located in the pulse power supply control cabinet. The switches, elapsed time indicator, circuit breakers, and power-on lights are located on the panel just inside the main cabinet door. In addition, there is a column of indicator lights on the Texas Instrument Type 510 Programmmable Controller which can be seen by looking over the top of the control panel.

a. CONTROL PANEL

(1) AC ON RED INDICATOR LIGHT. The light is on when the AC input power is present and the two circuit breakers are switched on.

(2) PULSE POWER ON GREEN INDICATOR LIGHT. The light is on when the pulse power supply is on.

(3) CONTROL POWER SINGLE POLE CIRCUIT BREAKER. This circuit breaker supplies power to the control circuits of the equipment. In addition to this circuit breaker there are two control power fuses on the back of the lower inside hinged panel.

(4) POWER ON TWO POSITION SWITCH. When AC power is present and the circuit breakers are on, this switch turns on the pulser. The actual turn-on sequence of the various circuits is controlled by the machine. The POWER ON switch is also used to reset latched interlocks by switching to the OFF position and then back ON.

(5) ELAPSED TIME METER. The meter indicates total accumulated operating time of the equipment.

(6) VOLTAGE CONTROL SWITCH. This switch manually energizes the spark gap space control motor in the pulser. After activating either an INCREASE or DECREASE command, the switch will spring back to the center off position.

b. CONTROLLER INDICATOR LIGHTS

There is a row of red indicator lights on the TI510

programmable controller. They show the status of the inputs and outputs of the controller and are a good indicator of the status of the machine. The top eight lights, Y1 through Y8, indicate the control outputs and the bottom 12 lights. X9 through X20, indicate the control inputs. The numbers on the lights correspond to the numbers on the terminal strip where the actual control inputs and outputs are connected. Outputs Y1 through Y8, are 115 VAC. The inputs, X9 - X14, are wired for 115 VAC and inputs, X15 - X20 ,are wired for 28 VDC input. The lights, however, work the same for all inputs.

Unused inputs and outputs, ones with nothing connected to their terminals, do not give meaningful signals. An input or output must have an external load for the light to operate correctly.

(1) Y1 3 Phase Contactor. Supplies 115 VAC to the coil of the 3 Phase Contactor which energizes the high power electronics.

(2) Y2 Trigger Power. Supplies 115 VAC to the power supply for the power trigger electronics. In a normal turn-on sequence Y2 comes on one second after Y1 to allow the high voltage power supply to come on and stabilize before the pulse trigger is started.

(3) Y3 Gap Motor Open. Provides the 115 VAC to the spark gap control motor to increase the gap space.

(4) Y4 Gap Motor Close. Provides the 115 VAC to the spark gap control motor to reduce the gap space.

(5) Y5 Gap Close Fault. The control system monitors the duration of gap close operation. If the gap motor is continuously energized to close for 90 seconds the Y5 light will come on and the pulse power supply will be switched off.

Conditions which can cause a gap close fault include faulty gap motor assembly, a break in the 115 VAC wires to the gap motor, a small or no signal from the output current monitor in the pulser, a cable fault if cable is used between the pulse power supply and the pulser, or simply starting with the gap too wide open to recover within 90 seconds.

The light and its interlock are self-latching so it will remain ON and the power section will remain OFF until reset by switching the POWER ON switch OFF and then ON.

(6) Y6 Interlock Open Latch. Light is ON when pulser has tripped off due to an open interlock.

(7) Y7 Not Used.

(8) Y8 Overcurrent Latch. The light Y8 shows when the machine has shut off from overcurrent. A single overcurrent will not latch the machine off; after an overcurrent the supply is switched off and then on again in an effort to automatically restart. If more than 5 overcurrents happen within 6 minutes, then the supply is switched

off until manually reset. Manual reset is done by switching POWER ON off and then on.

(9) X9 Power ON Switch. The X9 input and light are energized by the POWER ON switch when it is in the ON position.

(10) X10 Not used.

(11) X11 Gap Open. The X11 input and light are energized when the VOLTAGE CONTROL (or manual gap) switch is in the INCREASE (or open gap) position.

(12) X12 Gap Close. The X12 input and light are energized when the VOLTAGE CONTROL (or manual gap) switch is in the DECREASE (or close gap) position.

(13) X13 Overtemperature. When the temperature inside the pulser control cabinet exceeds the setpoint, the X13 light goes out.

(14) X14 Interlock. The X14 input and light are energized when the access interlock switch is intact. When the access door is open the X14 light goes out and high voltage power is switched off.

(15) X15 Not Used.

(16) X16 Not Used.

(17) X17 Overcurrent. X17 is energized during periods of overcurrent. The light is not latched, so it is on only in the brief period of main power 3 phase line overcurrent. When overcurrent occurs, the main power 3 phase contactor is opened, but it will close again within a second to try again. If more than 5 overcurrents happen within 6 minutes, the controller will shut off the main 3 phase power contactor and quit trying to restart. When the main power is off and not trying to restart, Y8 is on.

(18) Not Used.

(19) Not used.

(20) Not used.

TURN-ON PROCEDURE

a. Switch on MAIN POWER circuit breaker.

b. Switch on CONTROL POWER circuit breaker. The red POWER ON light should come on.

c. Activate POWER ON switch. The main power contactor will energize

and 1 second later output pulses will be generated. The green PULSE POWER ON light should be on and the ELAPSED TIME meter should be running.

d. The sequence of turn-on is not critical. If desired the CONTROL POWER circuit breaker can be left on.

e. To turn the system off, the POWER-ON switch and the MAIN POWER circuit breaker should be turned off.

ADJUSTING THE OUTPUT VOLTAGE

The output voltage is adjusted by turning the pulse voltage switch on the console to either the RAISE VOLTAGE or LOWER VOLTAGE position. The actual voltage can be read by the 10kV:1V voltage divider and an oscilloscope. The signal from the voltage divider can be accessed by the BNC male plug, which protrudes from the electrical junction box on one side of the pulser. For convenient reading set the scope at a sweep speed of 5msec/division. The polarity of the signal from the voltage divider is positive.

ADJUSTING THE PULSE REPETITION RATE

A pulse rate meter is supplied with the control cabinet. The rate meter should be connected via a coax cable to the BNC-T on the junction box on the side of the control cabinet. The pulse rate can be read directly from this meter and also from an oscilloscope while measuring the pulse voltage. The rate can be adjusted by opening the top control panel in the control cabinet and turning the rate adjust potentiometer on the trigger board. (See figures 1 and 2) Clockwise turning reduces the rep rate. A very small screwdriver is needed for this operation.

Status Lights on Programmable Controller

Y1	3 Phase Contactor	ON when pulse power is ON
Y2	28V DC Power	ON when pulse power is ON
Y3	Increase Pulse Voltage	ON when gap is opening
Y4	Decrease Pulse Voltage	ON when gap is closing
Y5	Gap Close Fault	ON when gap has been closing for more than 90 seconds
Y6	Interlock Open Latch	ON when pulser has tripped on open interloc
Y7	Not Used	
Y8	Overcurrent Latch	ON when pulser has tripped on overcurrent after five restarts
X9	AC ON	ON when control power is ON
X10	Not Used	
X11	Manual Gap Open AC	ON when manual INCREASE is used
X12	Manual Gap Close AC	ON when manual DECREASE is used
X13	Overtemperature AC	Normally ON, OFF after overtemperature trip
X14	Interlock AC	Normally ON, OFF when interlock is open
X15	Not Used	
X16	Not Used	
X17	Overcurrent	ON only while overcurrent is occurring
X18	Not Used	
X19	Not Used	
X20	Not Used	

TROUBLESHOOTING GUIDE

Should the system malfunction and shut off, the first step should be a recording of the on-off status of all the lights on the TI programmable controller. From the status of the lights, most of the potential problems can be identified. Typical examples are listed below:

Y5 is ON. Gap Close Fault. When a gap close fault occurs it means that the controller has had a continuous signal for 90 seconds to reduce the gap spacing. Conditions which can cause this include a faulty gap motor assembly, a break in the 115 VAC line to the gap motor, a small or no signal from the output current monitor in the pulser, or a gap that was too wide open to close enough in 90 seconds to match the actual charging time with the preset charging time. The latter can be cured by resetting the POWER ON switch and proividing the gap an additional 90 seconds closure time. If the problem persists, it might be that the gap was too close and an inadequate output signal was generated. To check this possibility, turn the VOLTAGE CONTROL knob to INCREASE for approximately 25 seconds before resetting the POWER ON switch.

Y8 is ON. Overcurrent Latch. If Y8 is on it means that at least five overcurrents have occurred on the 3 phase power line within the last 6 minutes. Y8 stays latched until manually reset with the POWER ON switch. Overcurrent can be caused by shorts in the low voltage capacitor banks, SCR tailbiting, flashovers etc.
Individual overcurrents can be noticed by observing the X17 light. Occasional overcurrents are dealt with by automatic restarts.

X13 is OFF. Overtemperature. A temperature switch is located inside the pulser control cabinet. If the cabinet temperature exceeds the setpoint, this switch will open and the X13 light will be off. The pulser cannot be restarted until this switch cools off and closes. When this happens, the X13 light will come back on.

X14 is OFF. Interlock. The pulse power contactor is controlled through a series of three switches. Two switches are on the upper and lower hinged panels inside the pulser control cabinet and the third is an auxiliary switch. If a switch is open, power to the pulser will be interrupted and the X14 light will be off.
If this circuit was interrupted while the pulser was on , Y6 will be lit. Resetting the POWER ON switch is required to turn the system back on.

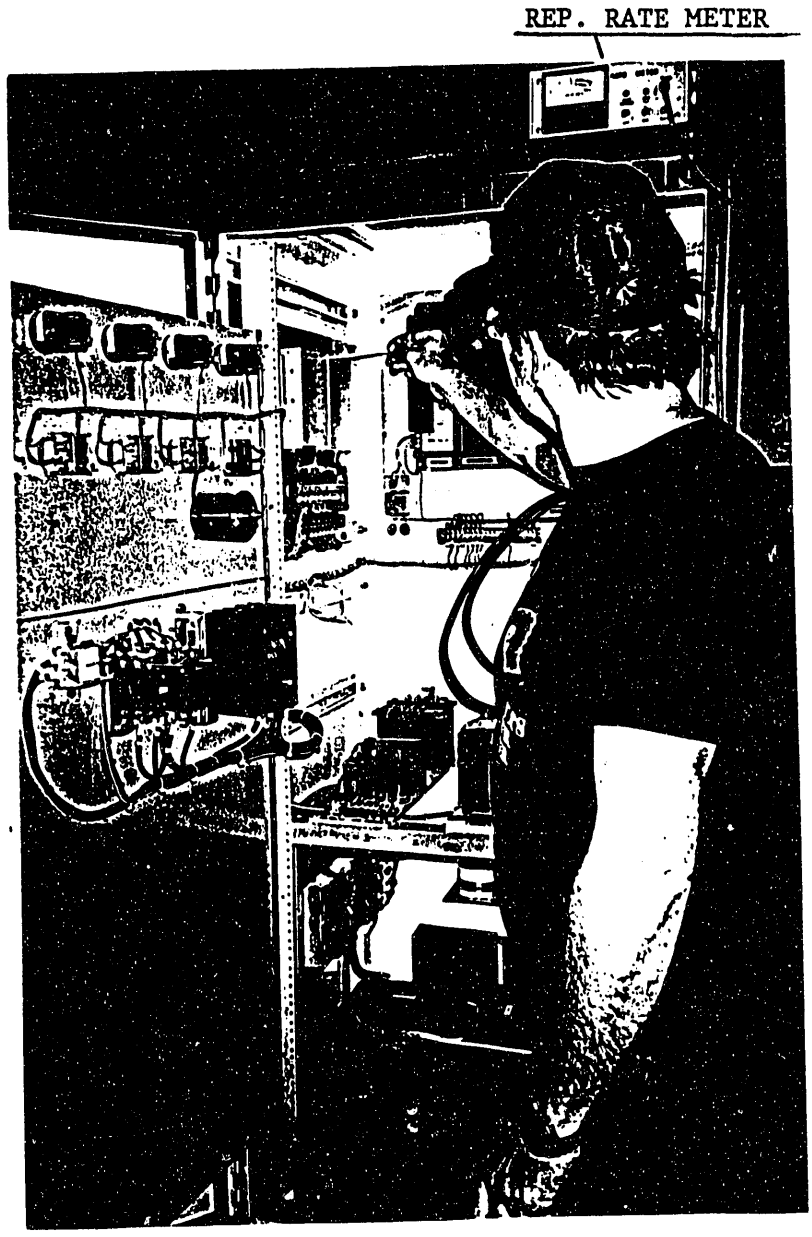


FIGURE 1 ADJUSING THE REPETITION RATE

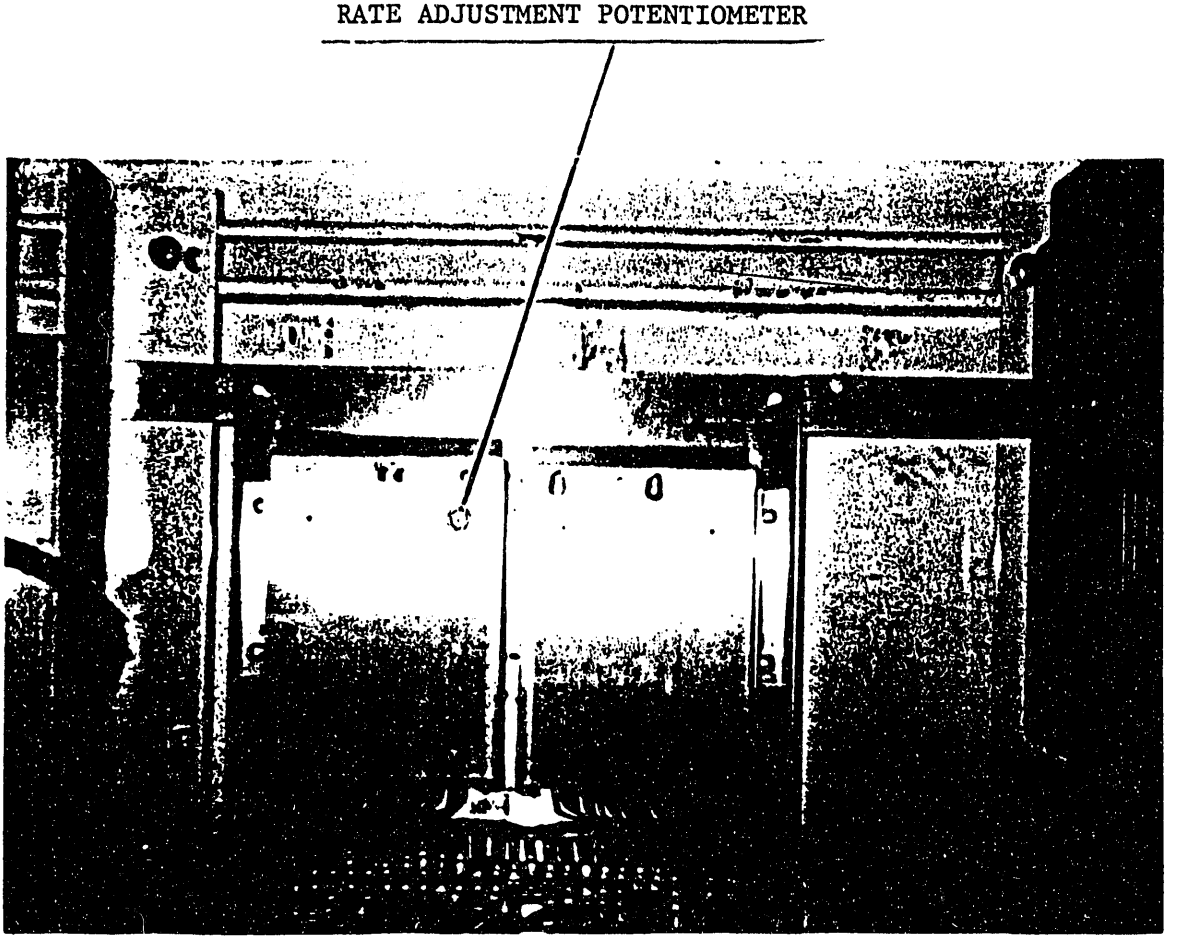


FIGURE 2 LOCATION OF RATE ADJUSTMENT POTENTIOMETER

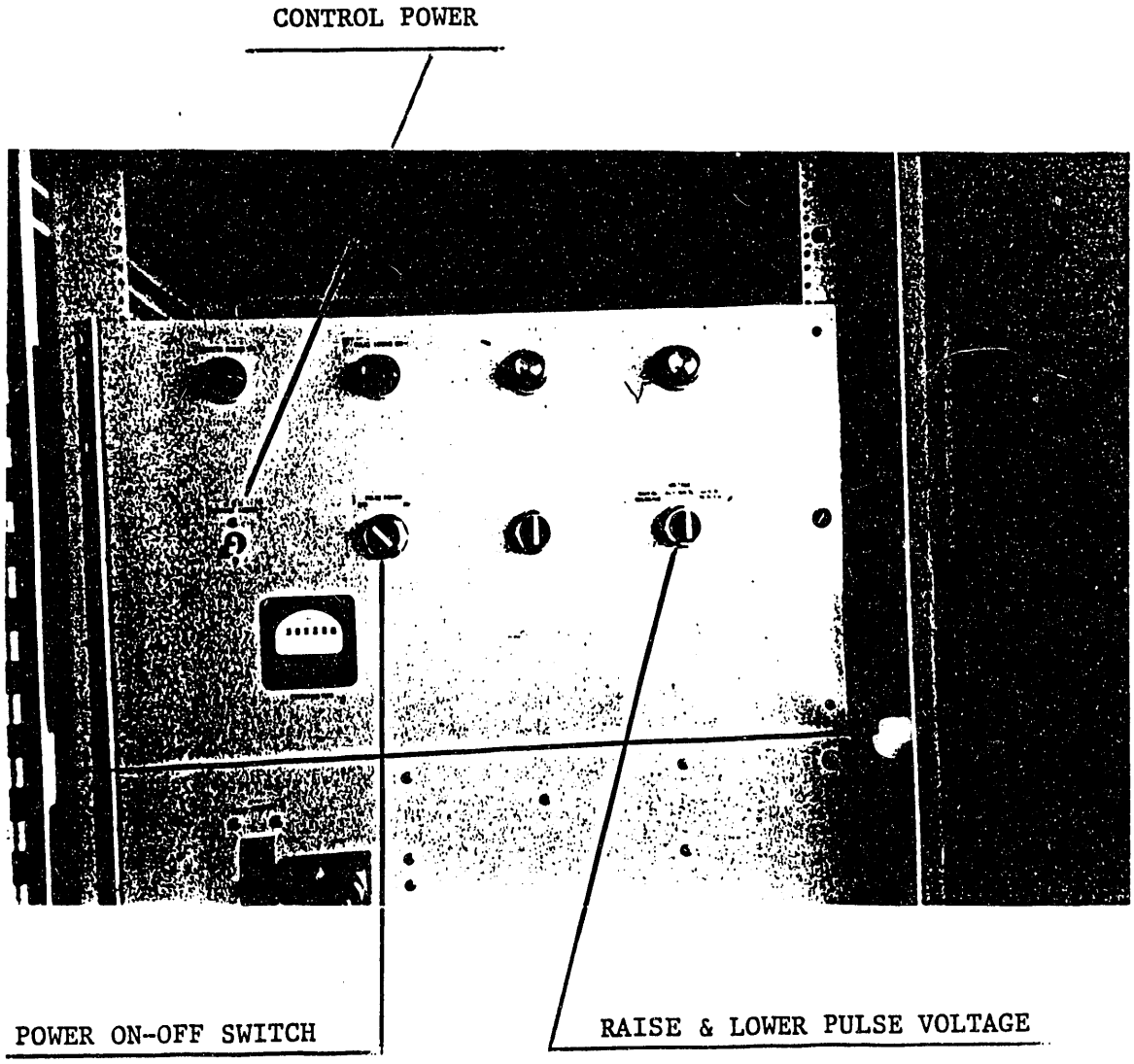


FIGURE 3 CONTROL PANEL

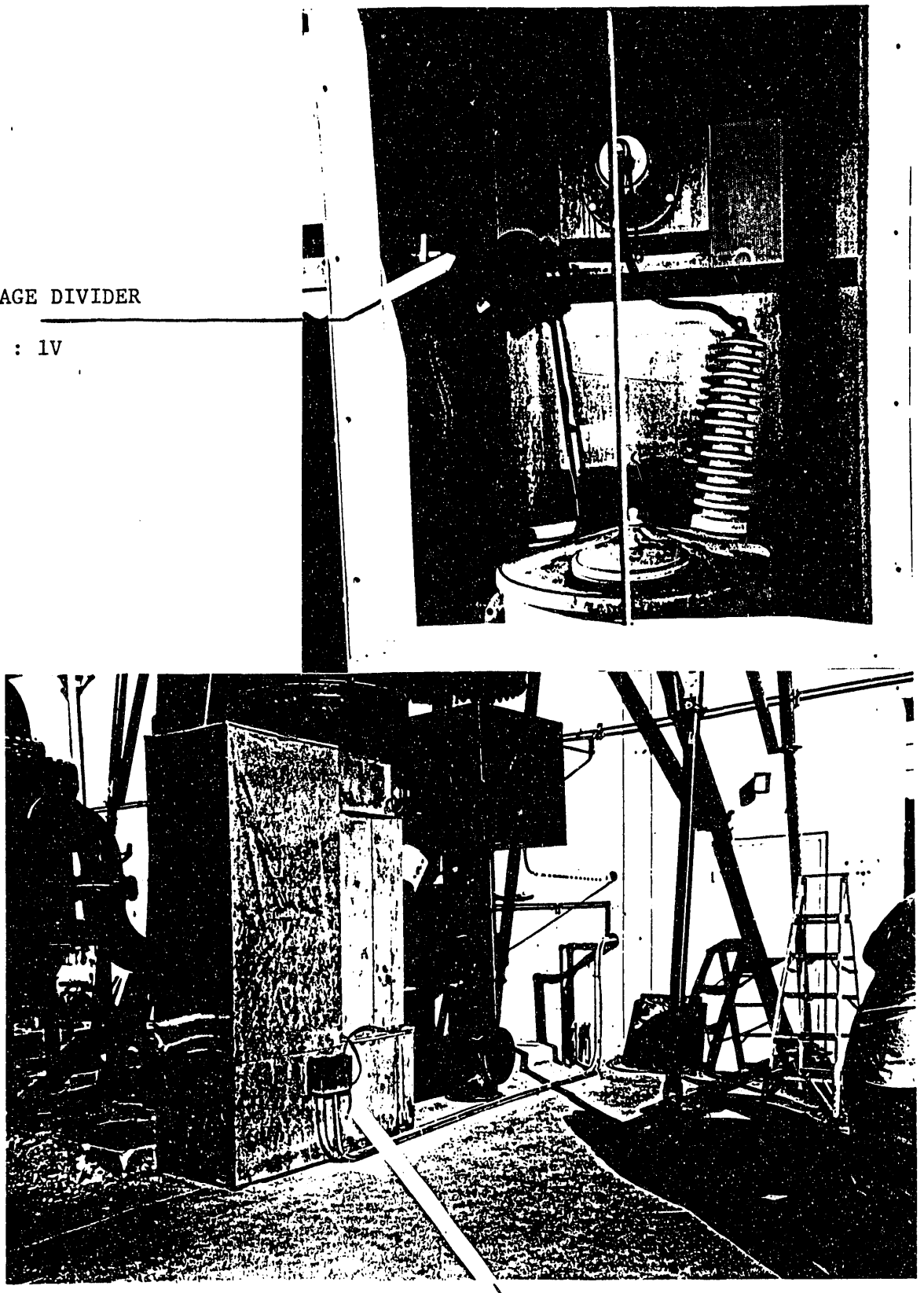


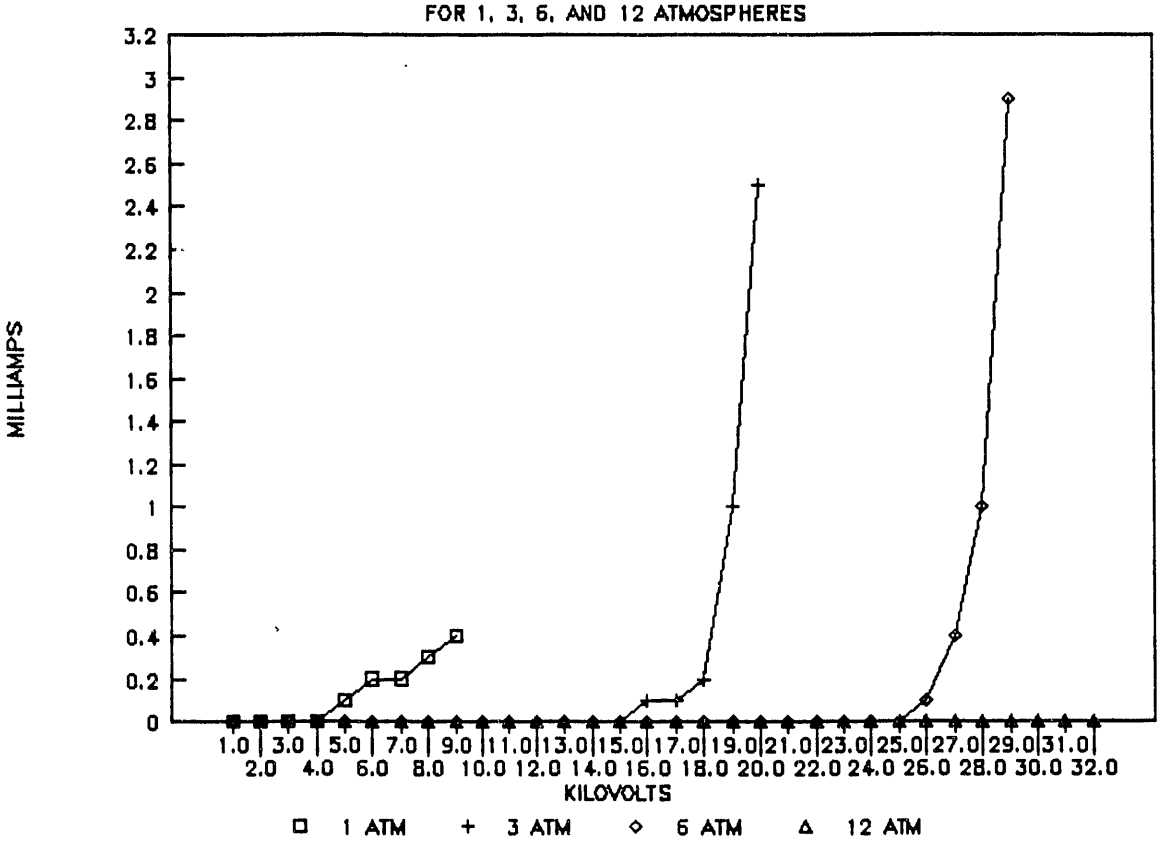
FIGURE 4 VOLTAGE DIVIDER

APPENDIX E

ELECTROSTATIC AGGLOMERATOR CURRENT-VOLTAGE DATA

CLEAN ESA CURRENT–VOLTAGE PLOT AT 800 F

FOR 1, 3, 6, AND 12 ATMOSPHERES



	TEMPERATURES (F)				
ATMOS	1	3	6	12	15
INLET	866	857	788	868	960
TOP	641	688	628	722	745
OUTLET	683	805	667	810	841
DUCT	700	734	764	704	797
TOP COIL1	569	594	615	649	678
TOP COIL2					
BUSHING 1					
BUSHING 2					
FLANGE 1					
FLANGE 2					
54" TEMP					

CURRENT-VOLTAGE DATA FOR 800 DEGREES F (8-23-91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0	0.0	0.0
2.0	0.0	0.0	0.0	0.0	0.0
3.0	0.0	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0	0.0
5.0	0.1	0.0	0.0	0.0	0.0
6.0	0.2	0.0	0.0	0.0	0.0
7.0	0.2	0.0	0.0	0.0	0.0
8.0	0.3	0.0	0.0	0.0	0.0
9.0	0.4	0.0	0.0	0.0	0.0
10.0	SPARK	0.0	0.0	0.0	0.0
11.0		0.0	0.0	0.0	0.0
12.0		0.0	0.0	0.0	0.0
13.0		0.0	0.0	0.0	0.0
14.0		0.0	0.0	0.0	0.0
15.0		0.0	0.0	0.0	0.0
16.0		0.1	0.0	0.0	0.0
17.0		0.1	0.0	0.0	0.0
18.0		0.2	0.0	0.0	0.0
19.0		1.0	0.0	0.0	0.0
20.0		2.5	0.0	0.0	0.0
21.0		TRIP	0.0	0.0	0.0
22.0			0.0	0.0	0.0
23.0			0.0	0.0	0.0
24.0			0.0	0.0	0.0
25.0			0.0	0.0	0.0
26.0			0.1	0.0	0.0
27.0			0.4	0.0	0.0
28.0			1.0	0.0	0.0
29.0			2.9	0.0	0.0
30.0			TRIP	0.0	0.0
31.0				0.0	0.0
32.0				0.0	0.0

	TEMPERATURES (F)				
ATMOS	1	3	6	12	15
INLET	1020	1010	974		
TOP	774	765	758		
OUTLET	906	917	880		
DUCT	884	887	666		
TOP COIL1	645	654	661		
TOP COIL2	593	608	634		
BUSHING 1	356	361	358		
BUSHING 2	366	370	368		
FLANGE 1	154	155	156		
FLANGE 2	125	126	126		
54" TEMP					

CURRENT-VOLTAGE DATA FOR 1000 DEGREES F (8-26-91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0		
2.0	0.0	0.0	0.0		
3.0	0.0	0.0	0.0		
4.0	0.0	0.0	0.0		
5.0	0.0	0.0	0.0		
6.0	0.0	0.0	0.0		
7.0	0.0	0.0	0.0		
8.0	SPARK	0.0	0.0		
9.0		0.0	0.0		
10.0		0.0	0.0		
11.0		0.0	0.0		
12.0		SPARK	0.0		
13.0			0.0		
14.0			0.0		
15.0			0.0		
16.0			0.0		
17.0			0.0		
18.0			0.0		
19.0			0.0		
20.0			0.1		
21.0			0.1		
22.0			0.6		
23.0			1.2		
24.0			2.0		
25.0			3.2		
26.0			TRIP		
27.0					
28.0					
29.0					
30.0					
31.0					
32.0					

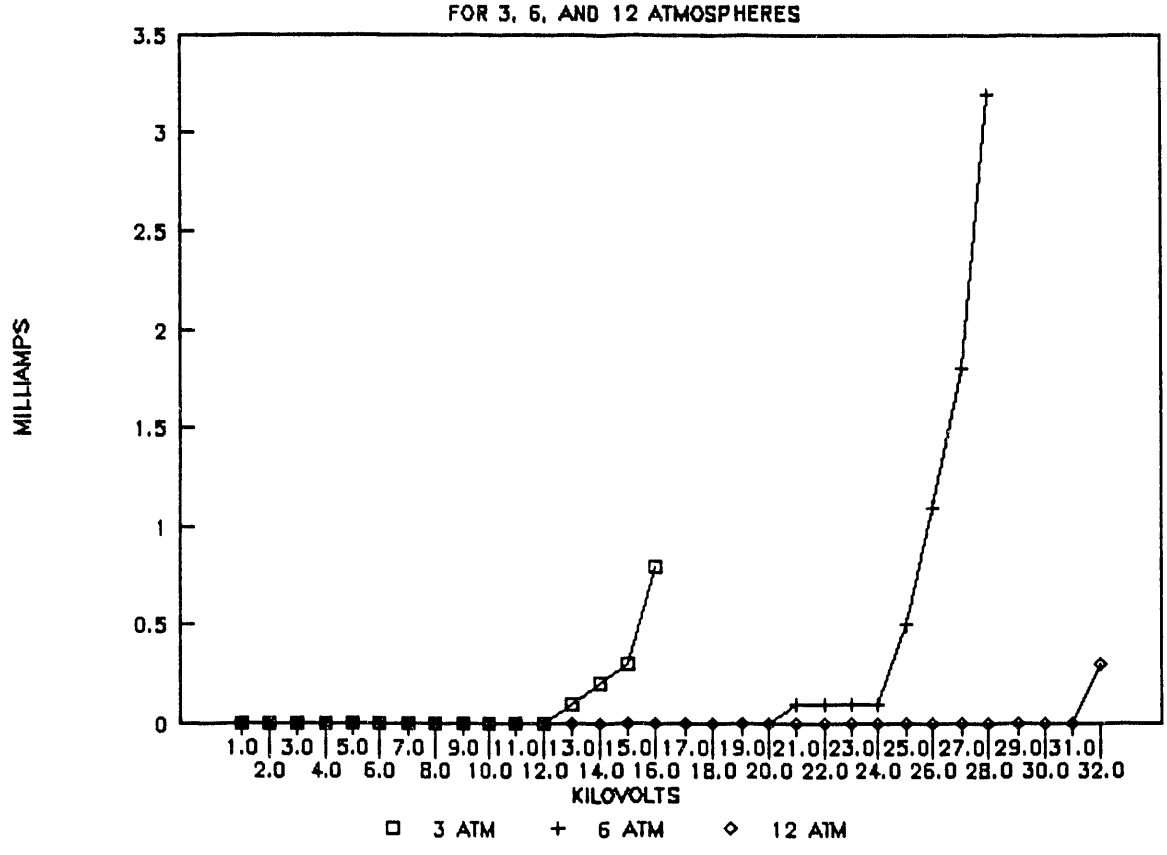
	TEMPERATURES (F)				
ATMOS	1	3	6	12	15
INLET	1161	1189	1188	1270	1221
TOP	771	807	831	908	881
OUTLET	891	947	932	999	976
DUCT	1037	1017	991	1019	954
TOP COIL1	683	716	745	797	790
TOP COIL2	630	675	712	778	760
BUSHING 1	362	354	357	350	364
BUSHING 2	370	368	371	345	321
FLANGE 1	150	150	149	147	148
FLANGE 2	122	122	122	122	121

CURRENT-VOLTAGE DATA FOR 1200 DEGREES F (8-26-91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0	0.0	0.0
2.0	0.0	0.0	0.0	0.0	0.0
3.0	0.0	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0
6.0	SPARK	0.0	0.0	0.0	0.0
7.0		0.0	0.0	0.0	0.0
8.0		0.0	0.0	0.0	0.0
9.0		0.0	0.0	0.0	0.0
10.0		0.0	0.0	0.0	0.0
11.0		0.0	0.0	0.0	0.0
12.0		0.1	0.0	0.0	0.0
13.0		0.2	0.0	0.0	0.0
14.0		0.3	0.0	0.0	0.0
15.0		0.6	0.0	0.0	0.0
16.0		TRIP	0.0	0.0	0.0
17.0			0.0	0.0	0.0
18.0			0.0	0.0	0.0
19.0			0.0	0.0	0.0
20.0			0.1	0.0	0.0
21.0			0.1	0.0	0.0
22.0			0.2	0.0	0.0
23.0			0.5	0.0	0.0
24.0			1.0	0.0	0.0
25.0			1.9	0.0	0.0
26.0			3.0	0.0	0.0
27.0			5.0	0.0	0.0
28.0			TRIP	0.1	0.0
29.0				0.4	0.0
30.0				0.7	0.0
31.0				0.9	0.0
32.0				1.0	0.1

CLEAN ESA CURRENT–VOLTAGE PLOT AT 1200F

FOR 3, 6, AND 12 ATMOSPHERES

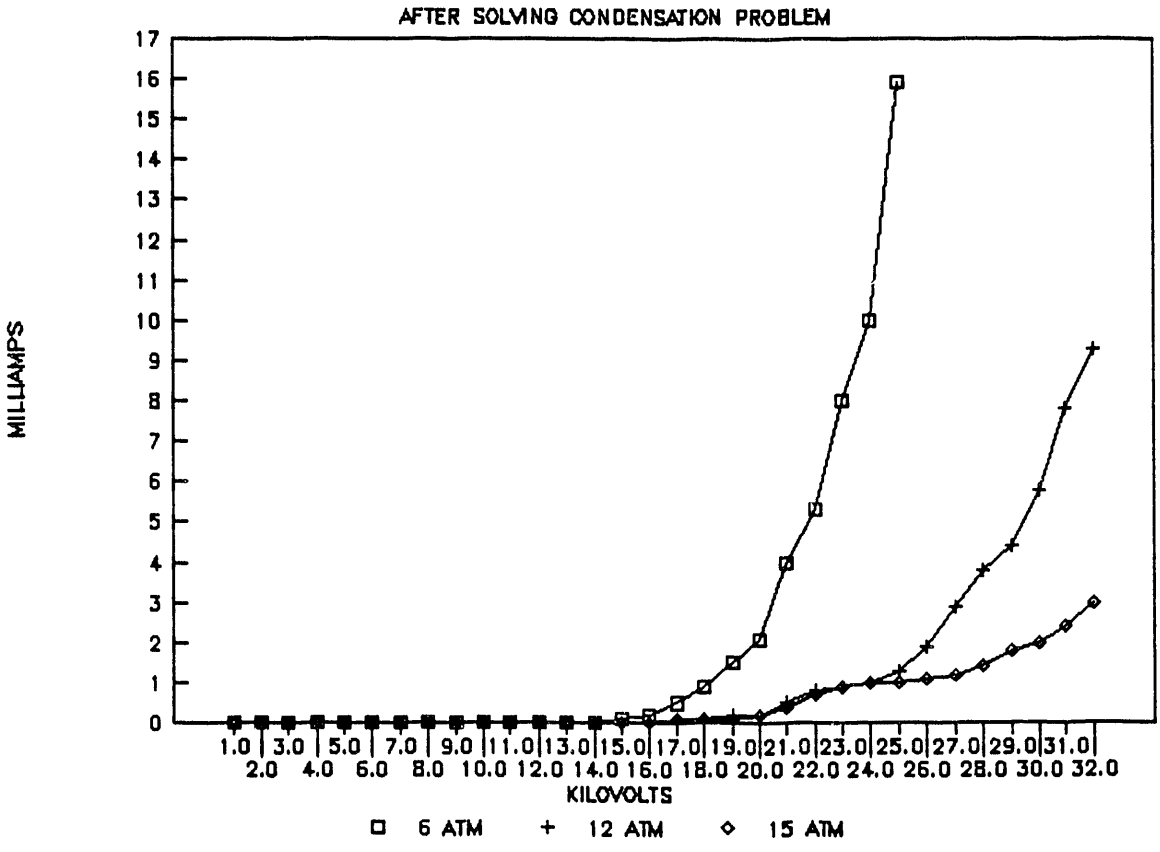


	TEMPERATURES (F)				
ATMOS	1	3	6	12	15
INLET	1205	1230	1205	1255	1200
TOP	792	772	773	813	825
OUTLET	969	972	956	946	909
DUCT	1010	1000	954	918	893
TOP COIL1	596	630	665	686	708
TOP COIL2					
BUSHING 1					
BUSHING 2					
FLANGE 1					
FLANGE 2					
54" TEMP					

CURRENT-VOLTAGE DATA FOR 1200 DEGREES F (8-23-91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0	0.0	0.0
2.0	0.0	0.0	0.0	0.0	0.0
3.0	0.0	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0
7.0	0.1	0.0	0.0	0.0	0.0
8.0	SPARK	0.0	0.0	0.0	0.0
9.0		0.0	0.0	0.0	0.0
10.0		0.0	0.0	0.0	0.0
11.0		0.0	0.0	0.0	0.0
12.0		0.0	0.0	0.0	0.0
13.0		0.1	0.0	0.0	0.0
14.0		0.2	0.0	0.0	0.0
15.0		0.3	0.0	0.0	0.0
16.0		0.8	0.0	0.0	0.0
17.0		SPARK	0.0	0.0	0.0
18.0			0.0	0.0	0.0
19.0			0.0	0.0	0.0
20.0			0.0	0.0	0.0
21.0			0.1	0.0	0.0
22.0			0.1	0.0	0.0
23.0			0.1	0.0	0.0
24.0			0.1	0.0	0.0
25.0			0.5	0.0	0.0
26.0			1.1	0.0	0.0
27.0			1.8	0.0	0.0
28.0			3.2	0.0	0.0
29.0			TRIP	0.0	0.0
30.0				0.0	0.0
31.0				0.0	0.0
32.0				0.3	0.0

CLEAN ESA CURRENT–VOLTAGE PLOT AT 1500F

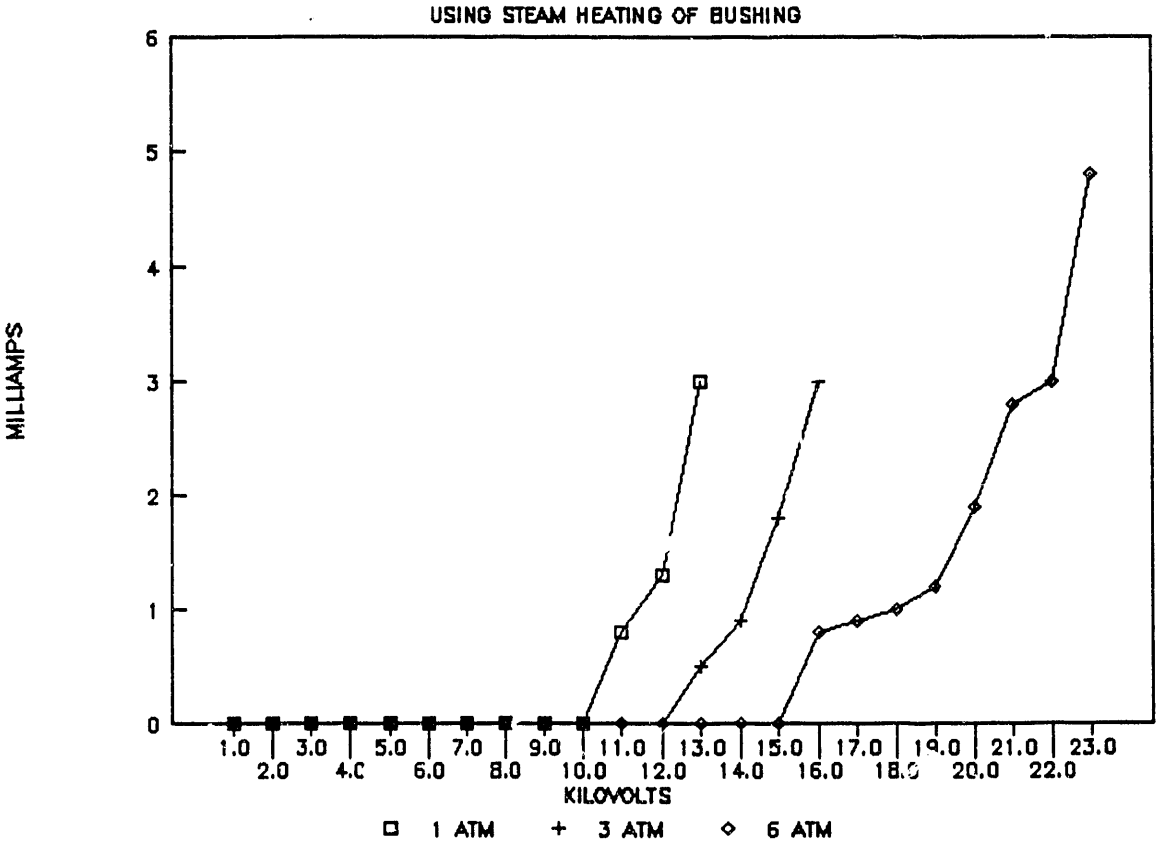


	TEMPERATURES (F)				
ATMOS	1	3	6	12	15
INLET	1493	1581	1659	1551	
TOP	1010	1036	1034	967	
OUTLET	1198	1289	1309	1221	
DUCT	1310	1336	1333	1259	
TOP COIL1	625	674	756	839	
TOP COIL2					
BUSHING 1					
BUSHING 2					
FLANGE 1					
FLANGE 2					
54" TEMP					

CURRENT-VOLTAGE DATA FOR 1500 DEGREES F (8-23-91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0	0.0	0.0
2.0	0.0	0.0	0.0	0.0	0.0
3.0	0.0	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0
7.0	0.0	0.0	0.0	0.0	0.0
8.0	0.0	0.0	0.0	0.0	0.0
9.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0
11.0	0.0	0.0	0.0	0.0	0.0
12.0	0.1	0.0	0.0	0.0	0.0
13.0	SPARK	0.1	0.0	0.0	0.0
14.0		1.2	0.0	0.0	0.0
15.0		SPARK	0.1	0.0	0.0
16.0			0.2	0.0	0.0
17.0			0.5	0.0	0.1
18.0			0.9	0.1	0.1
19.0			1.5	0.2	0.1
20.0			2.1	0.2	0.2
21.0			4.0	0.5	0.4
22.0			5.3	0.8	0.7
23.0			8.0	0.9	0.9
24.0			10.0	1.0	1.0
25.0			15.9	1.3	1.0
26.0			TRIP	1.9	1.1
27.0				2.9	1.2
28.0				3.8	1.4
29.0				4.4	1.8
30.0				5.8	2.0
31.0				7.8	2.4
32.0				9.3	3.0

CLEAN ESA CURRENT–VOLTAGE PLOT AT 1500F



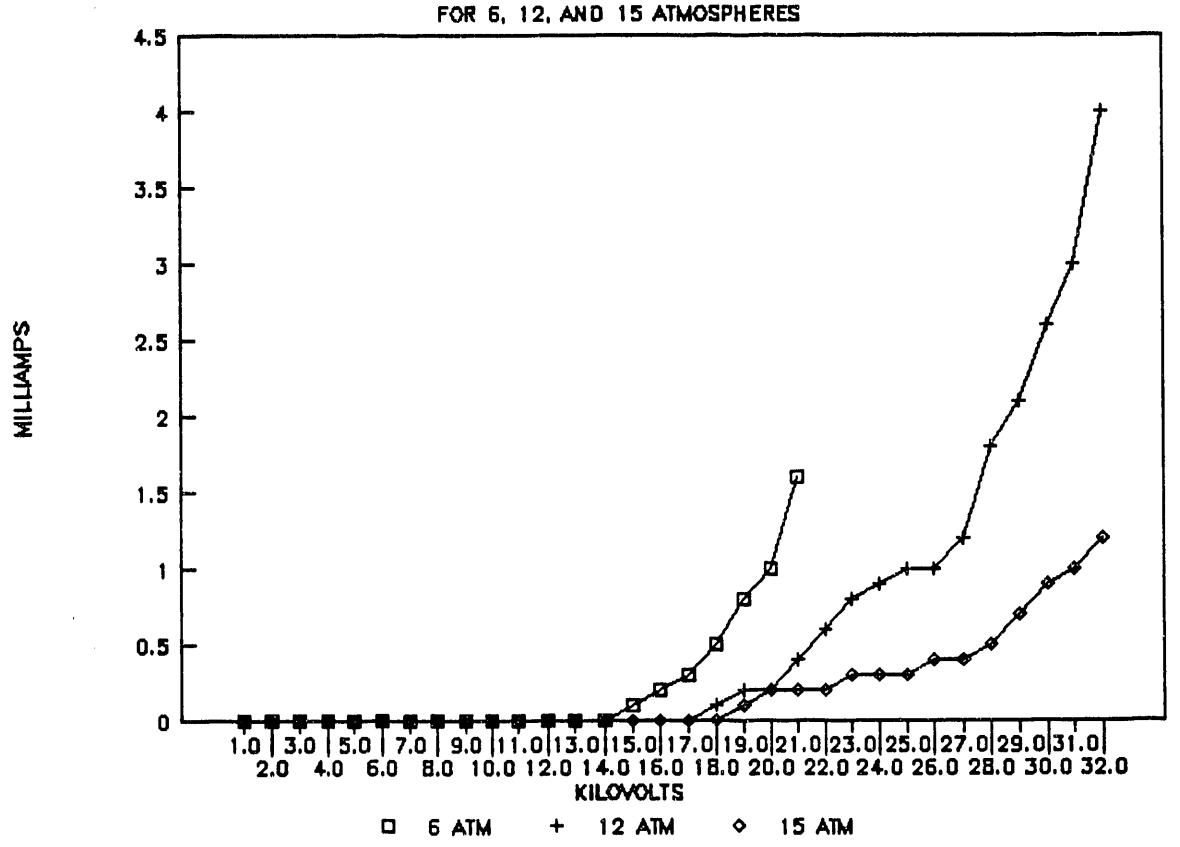
	TEMPERATURES (F) IN 30 MINUTE INTERVALS			
INLET	1634	1539	1455	1701
TOP	945	935	908	1056
OUTLET	1228	1125	1107	1364
DUCT	1227	1266	1347	1376
TOP COIL1	769	768	706	727
TOP COIL2	736	724	657	665
BUSHING 1	231	375	366	372
BUSHING 2	339	366	357	358
FLANGE 1	161	159	159	159
FLANGE 2	127	123	127	127

CURRENT–VOLTAGE DATA FOR 1500 DEGREES F (8–19–91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0		
2.0	0.0	0.0	0.0		
3.0	0.0	0.0	0.0		
4.0	0.0	0.0	0.0		
5.0	0.0	0.0	0.0		
6.0	0.0	0.0	0.0		
7.0	0.0	0.0	0.0		
8.0	0.0	0.0	0.0		
9.0	0.0	0.0	0.0		
10.0	0.0	0.0	0.0		
11.0	0.8	0.0	0.0		
12.0	1.3	0.0	0.0		
13.0	3.0	0.5	0.0		
14.0	SPARKING	0.9	0.0		
15.0		1.8	0.0		
16.0		3.0	0.8		
17.0		TRIP	0.9		
18.0			1.0		
19.0			1.2		
20.0			1.9		
21.0			2.8		
22.0			3.0		
23.0			4.8		
24 0			TRIP		
25.0					

CLEAN ESA CURRENT–VOLTAGE PLOT AT 1800F

FOR 6, 12, AND 15 ATMOSPHERES



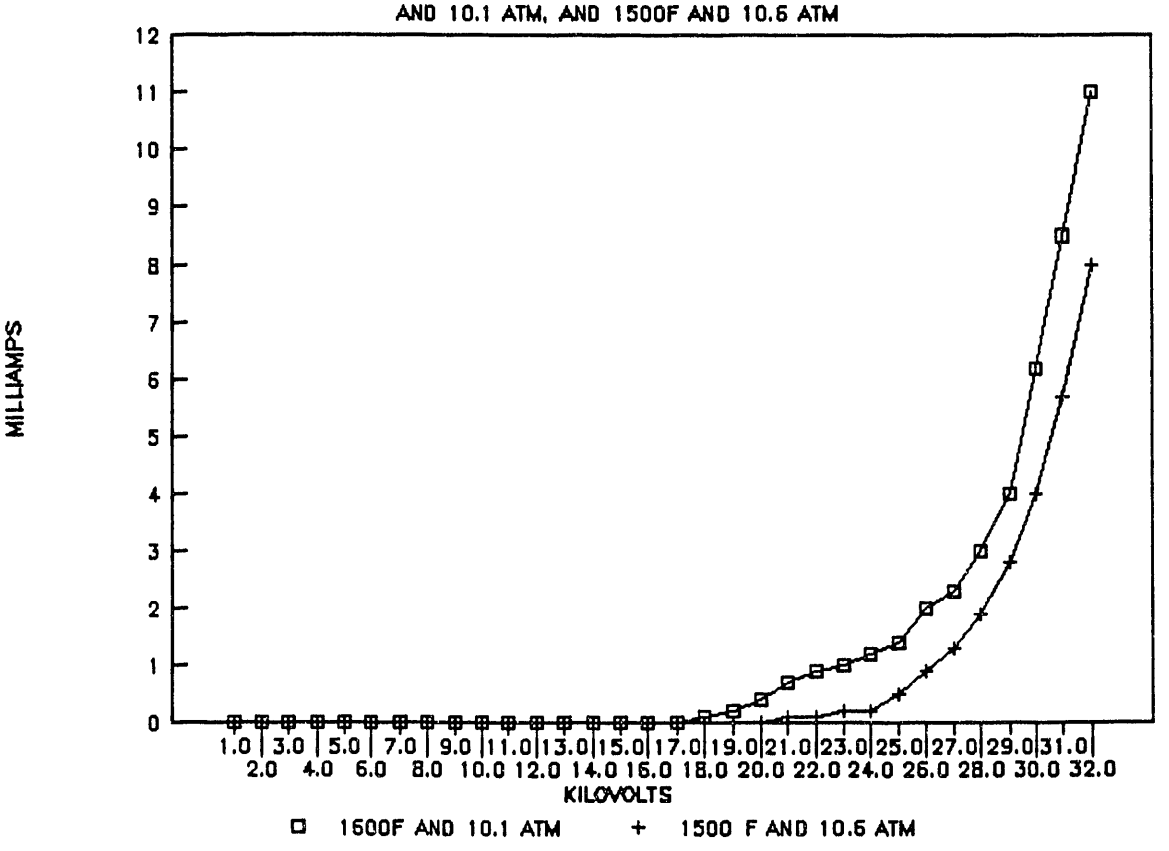
	TEMPERATURES (F)				
ATMOS	1	3	6	12	15
INLET	1545	1753	1794	1845	1628
TOP	891	976	922	955	963
OUTLET	990	1332	1279	1278	1166
DUCT	1369	1389	1374	1264	1147
TOP COIL1	626	678	749	828	847
TOP COIL2	599	643	727	817	812
BUSHING 1	365	357	366	360	366
BUSHING 2	370	362	370	370	376
FLANGE 1	128	128	132	137	42
FLANGE 2	107	107	109	112	115
54" TEMP					

CURRENT-VOLTAGE DATA FOR 1800 DEGREES F (8-26-91) USING STEAM.

	ATMOSPHERES				
	1.0	3.0	6.0	12.0	15.0
KILOVOLT			MILLIAMPS		
1.0	0.0	0.0	0.0	0.0	0.0
2.0	0.0	0.0	0.0	0.0	0.0
3.0	0.0	0.0	0.0	0.0	0.0
4.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0
7.0	0.0	0.0	0.0	0.0	0.0
8.0	0.0	0.0	0.0	0.0	0.0
9.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0
11.0	SPARK	0.1	0.0	0.0	0.0
12.0		0.2	0.0	0.0	0.0
13.0		SPARK	0.0	0.0	0.0
14.0			0.0	0.0	0.0
15.0			0.1	0.0	0.0
16.0			0.2	0.0	0.0
17.0			0.3	0.0	0.0
18.0			0.5	0.1	0.0
19.0			0.8	0.2	0.1
20.0			1.0	0.2	0.2
21.0			1.6	0.4	0.2
22.0			TRIP	0.6	0.2
23.0				0.8	0.3
24.0				0.9	0.3
25.0				1.0	0.3
26.0				1.0	0.4
27.0				1.2	0.4
28.0				1.8	0.5
29.0				2.1	0.7
30.0				2.6	0.9
31.0				3.0	1.0
32.0				4.0	1.2

CLEAN ESA CURRENT–VOLTAGE PLOT AT 1600F

AND 10.1 ATM, AND 1500F AND 10.6 ATM



	TEMPERATURES (F)	
	BEFORE CWS	AFTER CWS
ATM	10.1	10.6
INLET	1658	1513
TOP	1015	844
OUTLET	1306	1169
DUCT	1285	1235
TOP COIL1	851	845
TOP COIL2	830	842
BUSHING 1	363	361
BUSHING 2	372	376
FLANGE 1	145	147
FLANGE 2	118	125

CURRENT-VOLTAGE DATA FOR 1600 DEGREES F (8-29-91) USING STEAM.

	ATMOSPHERES	
	10.1	10.6
KILOVOLT	MILLIAMPS	
1.0	0.0	0.0
2.0	0.0	0.0
3.0	0.0	0.0
4.0	0.0	0.0
5.0	0.0	0.0
6.0	0.0	0.0
7.0	0.0	0.0
8.0	0.0	0.0
9.0	0.0	0.0
10.0	0.0	0.0
11.0	0.0	0.0
12.0	0.0	0.0
13.0	0.0	0.0
14.0	0.0	0.0
15.0	0.0	0.0
16.0	0.0	0.0
17.0	0.0	0.0
18.0	0.1	0.0
19.0	0.2	0.0
20.0	0.4	0.0
21.0	0.7	0.1
22.0	0.9	0.1
23.0	1.0	0.2
24.0	1.2	0.2
25.0	1.4	0.5
26.0	2.0	0.9
27.0	2.3	1.3
28.0	3.0	1.9
29.0	4.0	2.8
30.0	6.2	4.0
31.0	8.5	5.7
32.0	11.0	8.0

APPENDIX F

ELECTROSTATIC AGGLOMERATOR PARTICULATE SAMPLING DATA

Table F.1

Summary of Sampling Data
Collected Under Phase II Shakedown

Tests	Date	Slurry Type	Slurry Rate (lb/min)	Ash/Alum Rate (lb/min)	Flue Gas Flowrate (SCFM) dry	Expected Loading (g/SCF)	ESP Inlet Temp. (F)	ESP Outlet Temp. (F)	ESP Pressure (Psig)	ESP Sample Port	ESP Power	Actual Loading (g/SCF)	Efficiency %
0	10/02	Ash	0.72	0.14	139.81	0.47	1605	1322	158	in	off	none	
1	10/15	Ash	0.77	0.15	175.83	0.40	862	548	154	in	off	0.0201	
2	10/15	Ash	0.70	0.14	170.30	0.37	862	551	156	in	off	0.0565	
3	10/16	Ash	0.98	0.20	245.21	0.36	1042	840	156	in	off	0.0152	
4	10/16	Ash	1.22	0.24	245.34	0.45	1279	788	155	in	off	0.0077	
5	10/18	Ash	1.40	0.28	178.73	0.71	1278	901	157	in	off	0.0143	
6	10/23	Ash	0.60	0.12	233.11	0.23	1687	1352	156	in	off	0.0921	

Tests	Date	Slurry Type	Slurry Rate (lb/min)	Ash/Alum Rate (lb/min)	Flue Gas Flowrate (SCFM) dry	Expected Loading (g/SCF)	ESP Inlet Temp. (F)	ESP Outlet Temp. (F)	ESP Pressure (Psig)	ESP Sample Port	ESP Power	Actual Loading (g/SCF)	Efficiency %
7	10/23	Alumina	0.40	0.04	237.82	0.08	1678	1382	156	in	off	0.0096	
8	10/29	Alumina	0.72	0.07	192.71	0.17	1702	1425	184	in	off	0.0047	
9	10/29	Alumina	0.91	0.09	193.37	0.21	1732	1400	174	in	off	0.0567	
10	10/29	Alumina	0.84	0.08	199.66	0.19	1724	1380	178	in	off	0.0673	
11	10/29	Alumina	0.88	0.09	201.55	0.20	1762	1389	173	in	off	0.0960	
12	10/30	Alumina	0.77	0.08	200.31	0.17	1840	1409	169	out	off	0.0279	
13	10/30	Alumina	0.78	0.08	201.97	0.18	1830	1412	177	out	off	0.0079	
14	10/30	Alumina	1.00	0.10	202.07	0.22	1660	1386	178	out	off	0.0150	
15	10/30	Alumina	0.9	0.10	184.31	0.23	1760	1392	163	out	off	0.0286	

Tests	Date	Slurry Type	Slurry Rate (lb/min)	Ash/Alum Rate (lb/min)	Flue Gas Flowrate (SCFM) dry	Expected Loading (g/SCF)	ESP Inlet Temp. (F)	ESP Outlet Temp. (F)	ESP Pressure (Psig)	ESP Sample Port	ESP Power	Actual Loading (g/SCF)	Efficiency %
16	10/30	Alumina	0.87	0.09	184.34	0.21	1760	1392	163	in	off	0.3033	96.2
17	10/30	Alumina	0.82	0.08	185.42	0.20	1788	1414	172	out	on	0.0114	
18	10/30	Alumina	0.81	0.08	186.13	0.20	1788	1417	172	in	off	0.1071	
19	10/31	Alumina	0.77	0.08	185.47	0.19	1739	1360	177	out	off	0.0208	80.6
20	10/31	Alumina	0.75	0.08	186.16	0.18	1756	1330	174	out	on	0.0051	95.2
21	10/31	Alumina	0.76	0.08	191.41	0.18	1730	1390	171	in	off	0.0759	69.8
22	10/31	Alumina	0.74	0.07	190.70	0.18	1743	1390	171	out	off	0.0229	
23	10/31	Alumina	0.76	0.08	193.18	0.18	1732	1386	178	in	off	0.0778	97.6
24	10/31	Alumina	0.72	0.07	194.40	0.17	1736	1376	178	out	on	0.0019	
25	10/31	Alumina	0.73	0.07	194.50	0.17	1759	1376	169	in	off	0.0825	74.2
26	10/31	Alumina	0.72	0.07	194.21	0.17	1763	1383	167	out	off	0.0213	
27	10/31	Alumina	0.66	0.07	193.84	0.15	1768	1395	171	in	off	0.0620	97.9
28	10/31	Alumina	0.65	0.07	192.95	0.15	1773	1389	173	out	on	0.0013	

Tests	Date	Slurry Type	Slurry Rate (lb/min)	Ash/Alum Rate (lb/min)	Flue Gas Flowrate (SCFM) dry	Expected Loading (g/SCF)	ESP Inlet Temp. (F)	ESP Outlet Temp. (F)	ESP Pressure (Psig)	ESP Sample Port	ESP Power	Actual Loading (g/SCF)	Efficiency %
29	11/01	Alumina	1.21	0.12	277.86	0.20	1699	1367	172	in	off	0.1280	67.3
30	11/01	Alumina	1.20	0.12	276.88	0.20	1702	1363	170	out	off	0.0419	
31	11/01	Alumina	1.21	0.12	277.23	0.20	1704	1341	170	in	off	0.1002	92.2
32	11/01	Alumina	1.24	0.12	278.94	0.20	1710	1340	167	out	on	0.0078	
33	11/01	Alumina	1.18	0.12	278.49	0.19	1689	1341	166	in	off	0.1014	41.0
34	11/01	Alumina	1.20	0.12	279.10	0.20	1691	1336	166	out	off	0.0598	
#35	11/01	Alumina	1.47	0.15	281.40	0.24	1786	1355	168	in	off	0.1832	44.4
36	11/01	Alumina	1.34	0.13	280.75	0.22	1752	1351	169	out	off	0.1019	
37	11/01	Alumina	1.47	0.15	281.40	0.24	1786	1355	168	in	off	0.1832	88.8
38	11/01	Alumina	1.44	0.14	280.27	0.23	1749	1342	166	out	on	0.0206	
37	11/01	Alumina	1.47	0.15	281.40	0.24	1786	1355	168	in	off	0.1832	
##39	11/01	Alumina	1.20	0.12	277.41	0.20	1774	1348	171	out	on	0.0075	95.9
##40	11/01	Alumina	1.30	0.13	279.15	0.21	1734	1340	172	out	on	0.0087	95.3

Thimble RL3 of test #35 cracked, substituted test #35 with test #37
Particle Charge Measurement Test

Table F.2

Summary of ESP Collection Efficiency
Shakedown Testing Using Alumina

Date	Velocity fps	Inlet Load gr/DSCF	Press. ATM	Inlet Temp F	Outlet Temp F	Volt kV	Capture Effic.	Water Vapor %
10/30/91	4.9	4.66	11.5	1795	1418	30	0.962	21
10/31/91	4.9	1.65	11.5	1795	1418	0	0.806	21
10/31/91	4.9	1.65	11.5	1765	1350	30	0.952	21
10/31/91	4.9	1.17	11.4	1741	1400	0	0.699	21
10/31/91	4.9	1.19	11.8	1740	1384	30	0.975	21
10/31/91	4.9	1.27	10.9	1776	1393	0	0.741	21
10/31/91	4.9	0.95	11.5	1760	1391	30	0.979	21
10/31/91	7.3	1.97	11.1	1707	1381	0	0.672	18
10/31/91	7.3	1.54	11.1	1707	1381	30	0.922	18
11/1/91	7.3	1.56	11.1	1692	1351	0	0.410	18
11/1/91	7.3	2.82	11.1	1773	1341	30	0.888	18
11/1/91	7.3	2.82	10.9	1769	1326	30	0.959	18
11/1/91	7.3	2.82	10.9	1763	1372	30	0.952	18

Table F.3

Summary of Physical Parameters
in Shakedown Testing

	Specific Collection Area	ESP Particulate Collection Effic.	Tube Velocity	Particle Residence Time	Mechanical Collection Effic.
High flow condition	181 min/ft	92.3% @30 kV/inch	7.3 ft/s	0.68 S	50.6%
Low flow condition	272 min/ft	96.7% @30 kV/inch	4.9 ft/s	1.02 sec	74.9%

Note: Collection tube area
4" ID = 0.33 ft
5' length - 5.18 ft^2
Total area (4 tubes) = 20.7 ft^2

Table F.4
Cascade Impactor Data of ESP Inlet Sampling Alumina
Run #1, Nov 01, 1991
Conditions 350° F, and 15 atm.

Impactor Stage	Tare (g)	Final (g)	Net (g)	% in Size Range	% Cumulative Less Than Size Range	Effective Cut Diameter
	30.7396	31.111	0.018			
1	21.0894	21.4863	0.3969	29.034	70.966	5.0
2	22.0720	22.3042	0.2322	16.986	53.980	3.1
3	22.5866	22.8277	0.2411	17.637	36.342	2.1
4	15.3450	15.4600	0.1150	8.413	27.930	1.5
5	11.1713	11.2213	0.0500	3.658	24.272	0.9
6	11.0905	11.1007	0.0102	0.746	23.526	0.5
7	11.2119	11.2150	0.0031	0.227	23.299	0.31
8	21.6190	21.6214	0.0024	0.176	23.124	0.21
Filter	0.164	0.4796	0.3161	23.124	0.000	
			1.3670			

APPENDIX D

COMBUSTOR SHAKEDOWN CHRONOLOGICAL DATA

D081912.XLS

8/19/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
12:04:00	0.00	0.64	8.91	1.70	0.00	27.00	742	332	458	NA
12:08:00	0.00	0.74	9.90	1.70	0.00	27.00	777	332	485	NA
12:12:00	0.00	0.60	9.98	1.70	0.00	27.00	811	362	485	NA
12:16:00	0.00	0.65	10.51	1.70	0.00	27.00	845	362	512	NA
12:20:00	0.00	0.72	9.36	1.70	0.00	27.00	845	362	539	NA
12:24:00	0.00	0.60	10.42	1.24	0.00	27.00	874	389	539	NA
12:28:00	0.00	0.66	10.74	1.24	0.00	27.00	874	389	567	NA
12:32:00	0.00	0.76	9.98	1.13	0.00	27.00	901	389	567	NA
12:36:00	0.00	0.59	10.38	1.13	0.00	27.00	901	421	594	NA
12:40:00	0.00	0.64	10.48	1.13	0.00	27.00	928	421	594	NA
12:44:00	0.00	0.80	10.48	1.13	0.00	27.00	928	421	594	NA
12:48:00	0.00	0.59	9.97	1.13	0.00	27.00	928	421	621	NA
12:52:00	0.00	0.62	10.04	1.13	0.00	27.00	960	447	621	NA
12:56:00	0.00	0.91	10.05	1.13	0.00	27.00	960	447	621	NA
13:00:00	0.00	0.58	10.57	1.13	0.00	27.00	960	447	621	NA
13:04:00	0.00	0.62	9.94	1.13	0.00	27.00	990	447	621	NA
13:08:00	0.00	0.91	10.63	1.13	0.00	27.00	990	473	651	NA
13:12:00	0.00	0.58	10.61	1.13	0.00	27.00	990	473	651	NA
13:16:00	0.00	0.62	10.93	1.13	0.00	27.00	1017	473	651	NA
13:20:00	0.00	0.93	10.11	1.13	0.00	27.00	1017	473	651	NA
13:24:00	0.00	0.58	10.21	1.13	0.00	27.00	1017	473	623	NA
13:28:00	0.00	0.62	10.36	1.13	0.00	27.00	1017	499	661	NA
13:32:00	0.00	0.94	10.43	1.13	0.00	27.00	1044	499	671	NA
13:36:00	0.00	0.58	10.92	1.13	0.00	27.00	1044	499	672	NA
13:40:00	0.00	0.63	11.56	1.26	0.00	27.00	1106	533	703	NA
13:44:00	0.00	0.67	11.82	1.26	0.00	29.90	1106	533	703	NA
13:48:00	0.00	0.94	11.82	1.26	0.00	29.90	1131	561	729	NA
13:52:00	0.00	0.61	11.82	1.26	0.00	32.50	1131	561	699	NA
13:56:00	0.00	0.64	11.82	1.37	0.00	32.50	1131	561	737	NA
14:00:00	0.00	0.98	11.82	1.33	0.00	35.50	1085	605	738	NA

D081912.XLS

8/19/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
12:04:00	286	259	NA	NA	15.10	6.08	8.11	213	109	5
12:08:00	299	259	NA	NA	15.10	5.52	8.40	213	109	5
12:12:00	313	273	NA	NA	15.10	5.67	8.45	213	109	5
12:16:00	313	273	NA	NA	15.10	6.18	8.21	213	109	5
12:20:00	333	288	NA	NA	15.10	5.67	8.06	213	109	5
12:24:00	333	302	NA	NA	15.10	5.69	0.05	213	109	5
12:28:00	333	302	NA	NA	15.10	17.36	1.37	154	109	5
12:32:00	349	302	NA	NA	15.10	18.83	0.10	154	2	5
12:36:00	349	317	NA	NA	15.10	19.05	0.10	154	2	5
12:40:00	364	317	NA	NA	15.10	19.05	0.10	154	2	5
12:44:00	364	331	NA	NA	15.10	7.96	0.10	154	2	5
12:48:00	377	331	NA	NA	15.10	7.96	0.10	154	2	5
12:52:00	377	331	NA	NA	15.10	7.96	0.10	154	2	5
12:56:00	377	344	NA	NA	15.10	7.96	0.10	154	2	5
13:00:00	377	344	NA	NA	15.10	7.96	0.10	154	2	5
13:04:00	377	344	NA	NA	15.10	7.96	0.10	154	2	5
13:08:00	377	344	NA	NA	15.10	20.00	0.10	154	2	5
13:12:00	377	344	NA	NA	15.10	20.00	0.10	154	2	5
13:16:00	377	344	NA	NA	15.10	20.00	0.10	154	2	5
13:20:00	395	344	NA	NA	15.10	20.00	0.10	154	2	5
13:24:00	409	361	NA	NA	15.10	8.49	7.13	154	103	5
13:28:00	409	361	NA	NA	15.10	5.74	8.65	154	103	5
13:32:00	409	375	NA	NA	15.10	6.41	8.40	154	103	5
13:36:00	409	375	NA	NA	15.10	5.62	8.60	154	103	5
13:40:00	422	375	NA	NA	15.10	5.18	8.60	154	103	5
13:44:00	443	389	NA	NA	15.10	7.55	7.67	154	103	5
13:48:00	443	389	NA	NA	15.10	8.06	7.03	154	103	5
13:52:00	458	409	NA	NA	15.10	8.16	7.03	154	103	5
13:56:00	458	422	NA	NA	15.10	8.94	6.84	154	103	5
14:00:00	480	431	NA	NA	16.20	9.69	6.16	161	48	5

D081914.XLS

8/19/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.00	0.98	11.82	1.33	0.00	35.50	1085	605	738	NA
14:04:00	0.00	0.73	11.82	1.33	0.00	35.50	1085	605	707	NA
14:08:00	0.00	0.63	11.82	1.33	0.00	35.50	1085	605	735	NA
14:12:00	0.00	0.70	11.82	1.33	0.00	38.10	1085	636	746	NA
14:16:00	0.00	1.00	11.82	1.33	0.00	38.10	1085	636	740	NA
14:20:00	0.00	0.99	11.82	1.33	0.00	38.10	1120	636	730	NA
14:24:00	0.00	0.69	11.82	1.33	0.00	41.20	1120	636	730	NA
14:28:00	0.00	0.78	11.82	1.33	0.00	41.20	1145	632	740	NA
14:32:00	0.00	0.84	11.82	1.33	0.00	41.20	1172	682	800	NA
14:36:00	0.00	1.00	11.82	1.33	0.00	44.30	1222	714	855	NA
14:40:00	0.00	1.00	11.82	1.33	0.00	44.30	1237	719	879	NA
14:44:00	0.00	1.00	11.82	1.33	0.00	44.30	1266	719	892	NA
14:48:00	0.00	1.00	11.82	1.33	0.00	44.30	1266	693	752	NA
14:52:00	0.00	1.00	11.82	1.33	0.00	44.30	1313	773	888	NA
14:56:00	0.00	0.98	11.82	1.33	0.00	44.30	1279	699	740	NA
15:00:00	0.00	1.00	11.82	1.33	0.00	44.30	1279	699	758	NA
15:04:00	0.00	1.00	11.82	1.33	0.00	44.30	1306	738	860	NA
15:08:00	0.00	1.00	11.82	1.33	0.00	44.30	1333	772	933	NA
15:12:00	0.00	1.00	11.82	1.33	0.00	44.30	1333	772	943	NA
15:16:00	0.00	1.00	11.82	1.33	0.00	44.30	1359	802	910	NA
15:20:00	0.00	1.00	11.82	1.33	0.00	44.30	1359	752	773	NA
15:24:00	0.00	1.00	11.82	1.33	0.00	44.30	1359	779	814	NA
15:28:00	0.00	1.00	11.82	1.33	0.00	44.30	1359	805	833	NA
15:32:00	0.00	1.00	11.82	1.33	0.00	44.30	1385	833	939	NA
15:36:00	0.00	1.00	11.82	1.33	0.00	47.20	1432	863	1097	NA
15:40:00	0.00	1.00	11.82	1.33	0.00	47.20	1432	863	1066	NA
15:44:00	0.00	1.00	11.82	1.33	0.00	47.20	1389	822	869	NA
15:48:00	0.00	1.00	11.82	1.33	0.00	47.20	1449	885	1077	NA
15:52:00	0.00	1.00	11.82	1.33	0.00	47.20	1449	885	1045	NA
15:56:00	0.00	1.00	11.82	1.33	0.00	70.50	1665	1003	1321	NA
16:00:00	0.00	1.00	11.82	1.35	0.00	98.30	1694	990	1288	NA

D081914.XLS

8/19/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	480	431	NA	NA	16.20	9.69	6.16	161	48	5
14:04:00	480	431	NA	NA	16.20	9.67	6.06	161	48	5
14:08:00	496	446	NA	NA	16.20	9.77	6.11	161	48	5
14:12:00	496	446	NA	NA	16.20	9.84	6.11	161	48	5
14:16:00	509	460	NA	NA	16.20	9.87	5.96	161	48	5
14:20:00	509	460	NA	NA	16.20	9.50	6.06	161	48	5
14:24:00	530	478	NA	NA	16.20	9.16	6.50	161	48	5
14:28:00	530	478	NA	NA	16.20	8.55	7.03	161	48	5
14:32:00	548	498	NA	NA	16.20	8.86	6.79	161	48	5
14:36:00	567	514	NA	NA	16.20	7.57	7.77	161	48	5
14:40:00	567	514	NA	NA	16.20	6.89	8.16	161	48	5
14:44:00	585	533	NA	NA	16.20	6.45	8.16	161	154	5
14:48:00	585	549	NA	NA	16.20	6.33	8.01	161	154	5
14:52:00	604	549	NA	NA	16.20	5.37	8.50	161	154	5
14:56:00	604	564	NA	NA	16.20	5.25	8.50	161	154	5
15:00:00	618	564	NA	NA	16.20	5.15	8.84	161	154	5
15:04:00	618	582	NA	NA	16.20	5.45	8.84	161	154	5
15:08:00	618	582	NA	NA	16.20	5.81	8.50	161	154	5
15:12:00	605	599	NA	NA	16.20	6.11	8.45	161	154	5
15:16:00	605	599	NA	NA	16.20	6.03	8.35	161	154	5
15:20:00	620	599	NA	NA	16.20	5.84	8.26	161	154	5
15:24:00	620	614	NA	NA	16.20	5.62	8.40	161	154	5
15:28:00	620	614	NA	NA	16.20	5.23	8.69	173	154	5
15:32:00	635	628	NA	NA	16.20	5.20	8.94	173	154	5
15:36:00	635	628	NA	NA	20.50	5.45	8.89	173	154	5
15:40:00	635	628	NA	NA	20.50	5.45	8.74	173	154	5
15:44:00	635	628	NA	NA	20.50	5.89	8.50	173	154	5
15:48:00	635	607	NA	NA	20.50	5.93	8.45	173	154	5
15:52:00	648	592	NA	NA	20.50	5.79	8.35	173	154	5
15:56:00	688	611	NA	NA	63.60	5.37	8.50	173	154	5
16:00:00	734	681	NA	NA	90.30	4.86	8.89	169	282	3

D081916.XLS

8/19/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	1.00	11.82	1.35	0.00	98.30	1694	990	1288	NA
16:04:00	0.00	1.00	11.82	1.35	0.00	102.70	1438	917	1068	NA
16:08:00	0.00	1.00	11.82	1.35	0.00	109.90	1693	964	1258	NA
16:12:00	0.00	1.00	11.82	1.35	0.00	115.80	1661	964	1226	NA
16:16:00	0.00	1.00	11.20	1.35	0.00	146.00	1809	964	1355	NA
16:20:00	0.00	1.00	10.06	1.35	0.00	170.40	1809	943	1287	NA
16:24:00	0.00	1.00	9.80	1.35	0.00	189.50	1837	908	1224	NA
16:28:00	0.00	1.00	10.17	1.35	0.00	186.70	1816	917	1224	NA
16:32:00	0.00	0.77	10.05	1.35	0.00	186.70	1736	861	1167	NA
16:36:00	0.00	0.67	9.70	1.35	0.00	186.70	1707	861	1140	NA
16:40:00	0.00	0.70	10.31	1.35	0.00	189.50	1671	861	1140	NA
16:44:00	0.00	1.00	9.99	1.35	0.00	189.50	1641	861	1110	NA
16:48:00	0.00	1.00	9.89	1.35	0.00	189.50	1641	869	1110	NA
16:52:00	0.00	0.64	9.90	1.35	0.00	189.50	1615	834	1082	NA
16:56:00	0.00	0.68	10.04	1.35	0.00	192.30	1615	834	1082	NA
17:00:00	0.00	0.86	10.78	1.35	0.00	177.60	1048	667	919	NA
17:04:00	0.00	1.00	11.28	1.36	0.00	142.90	849	592	802	NA
17:08:00	0.00	1.00	11.82	1.36	0.00	133.40	1164	825	840	NA
17:12:00	0.00	0.93	11.82	1.36	0.00	130.70	1403	877	1025	NA
17:16:00	0.00	0.84	11.82	1.36	0.00	130.70	1405	885	1001	NA
17:20:00	0.00	0.85	11.82	1.36	0.00	130.70	1543	914	1101	NA
17:24:00	0.00	0.89	11.82	1.36	0.00	130.70	1557	914	1083	NA
17:28:00	0.00	0.94	11.82	1.36	0.00	130.70	1615	914	1157	NA
17:32:00	0.00	1.00	11.55	1.36	0.00	130.70	1564	945	1102	NA
17:36:00	0.00	1.00	11.82	1.36	0.00	130.70	1541	899	1105	NA
17:40:00	0.00	1.00	11.82	1.36	0.00	130.70	1580	912	1119	NA
17:44:00	0.00	1.00	11.82	1.36	0.00	130.70	1611	941	1150	NA
17:48:00	0.00	1.00	11.82	1.36	0.00	130.70	1609	941	1141	NA
17:52:00	0.00	1.00	11.82	1.36	0.00	133.40	1625	941	1163	NA
17:56:00	0.00	0.82	11.82	1.36	0.00	136.10	1625	936	1163	NA
18:00:00	0.00	0.83	11.71	1.32	0.00	136.30	1593	966	1136	NA

D081916.XLS

8/19/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	734	681	NA	NA	90.30	4.86	8.89	169	282	3
16:04:00	734	681	NA	NA	92.70	4.74	9.09	169	282	3
16:08:00	734	681	NA	NA	101.70	4.88	8.99	169	282	3
16:12:00	752	696	NA	NA	107.40	4.93	8.99	169	282	3
16:16:00	766	715	NA	NA	142.00	4.71	8.99	169	282	3
16:20:00	766	733	NA	NA	166.00	4.27	9.18	169	282	3
16:24:00	766	752	NA	NA	185.70	3.47	9.62	169	282	3
16:28:00	766	752	NA	NA	183.00	3.08	9.87	169	282	3
16:32:00	766	737	NA	NA	183.00	6.28	8.01	169	282	3
16:36:00	747	737	NA	NA	183.00	7.08	7.72	169	282	3
16:40:00	747	724	NA	NA	183.00	7.18	6.99	169	178	3
16:44:00	747	724	NA	NA	185.60	7.18	7.72	169	178	3
16:48:00	747	724	NA	NA	185.60	6.91	7.72	169	178	3
16:52:00	732	724	NA	NA	185.60	6.96	7.72	169	178	3
16:56:00	732	724	NA	NA	185.60	7.20	7.72	169	178	3
17:00:00	732	724	NA	NA	168.50	6.91	7.47	169	178	3
17:04:00	732	710	NA	NA	134.50	8.21	6.35	181	178	3
17:08:00	732	710	NA	NA	124.70	7.45	7.33	181	178	3
17:12:00	732	710	NA	NA	121.40	6.79	7.72	169	178	3
17:16:00	732	710	NA	NA	121.40	7.08	7.72	169	178	3
17:20:00	749	710	NA	NA	121.40	6.84	7.72	169	178	3
17:24:00	749	710	NA	NA	124.20	6.84	7.72	169	178	3
17:28:00	749	710	NA	NA	124.20	7.11	7.72	169	178	3
17:32:00	749	724	NA	NA	124.20	7.08	7.67	169	178	3
17:36:00	763	724	NA	NA	124.20	6.96	7.67	169	178	3
17:40:00	763	724	NA	NA	124.20	6.96	7.72	169	178	3
17:44:00	763	724	NA	NA	124.20	6.72	7.72	169	178	3
17:48:00	763	737	NA	NA	124.20	6.67	7.72	169	178	3
17:52:00	763	737	NA	NA	124.20	6.62	7.96	169	178	3
17:56:00	763	737	NA	NA	127.80	6.67	8.01	169	178	3
18:00:00	776	744	NA	NA	128.50	6.72	7.96	166	234	3

D081918.XLS

8/19/91 18:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
18:00:00	0.00	0.83	11.71	1.32	0.00	136.30	1593	966	1136	NA
18:04:00	0.00	0.87	11.71	1.32	0.00	136.30	1497	936	1043	NA
18:08:00	0.00	0.93	11.71	1.32	0.00	130.30	1375	888	928	NA
18:12:00	0.00	1.00	11.71	1.32	0.00	127.30	1429	943	968	NA
18:16:00	0.00	1.00	11.71	1.32	0.00	116.60	931	647	623	NA
18:20:00	0.00	1.00	11.71	1.32	0.00	102.00	1106	749	699	NA
18:24:00	0.00	1.00	11.71	1.32	0.00	99.40	1542	944	1144	NA
18:28:00	0.00	0.80	11.71	1.32	0.00	102.00	1585	952	1156	NA
18:32:00	0.00	0.84	11.71	1.79	0.00	102.00	1573	940	1150	NA
18:36:00	0.00	0.88	11.71	1.51	0.00	88.20	981	637	614	NA
18:40:00	0.00	0.93	11.71	1.37	0.00	56.90	919	588	564	NA
18:44:00	0.00	1.00	11.71	1.54	0.00	50.00	1281	731	844	NA
18:48:00	0.00	1.00	11.71	1.41	0.00	50.00	1446	858	1056	NA
18:52:00	0.00	1.00	11.71	1.41	0.00	50.00	1473	891	1138	NA
18:56:00	0.00	1.00	11.71	1.29	0.00	50.00	1513	918	1158	NA
19:00:00	0.00	1.00	11.71	1.29	0.00	62.30	1703	1054	1364	NA
19:04:00	0.00	0.79	11.71	1.29	0.00	53.60	1295	801	1005	NA
19:08:00	0.00	0.00	5.47	0.76	0.00	29.70	1057	600	673	NA
19:12:00	0.00	0.00	0.01	0.00	0.00	18.80	1072	560	748	NA
19:16:00	0.00	0.00	0.01	0.00	0.00	18.80	1230	769	1003	NA
19:20:00	0.00	0.00	0.01	0.00	0.00	16.10	1208	745	894	NA
19:24:00	0.00	0.00	0.01	0.00	0.00	16.10	1262	778	962	NA
19:28:00	0.00	0.00	0.01	0.00	0.00	16.10	1262	778	935	NA
19:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
19:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
19:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
19:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
19:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
19:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
19:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA
20:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	NA

D081918.XLS

8/19/91 18:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
18:00:00	776	744	NA	NA	128.50	6.72	7.96	166	234	3
18:04:00	776	744	NA	NA	128.50	6.72	7.96	166	234	3
18:08:00	771	744	NA	NA	121.60	7.13	7.67	166	234	3
18:12:00	771	744	NA	NA	118.10	7.28	7.67	166	234	3
18:16:00	771	744	NA	NA	103.70	6.98	7.38	166	234	3
18:20:00	771	729	NA	NA	89.20	7.28	7.38	166	131	3
18:24:00	771	729	NA	NA	89.20	7.38	7.38	166	131	3
18:28:00	771	729	NA	NA	89.20	7.35	7.38	166	131	3
18:32:00	771	729	NA	NA	89.20	7.67	7.62	166	131	3
18:36:00	755	729	NA	NA	65.70	7.35	7.57	166	131	3
18:40:00	724	693	NA	NA	26.40	7.01	7.47	178	131	3
18:44:00	711	663	NA	NA	18.60	7.30	7.77	178	131	3
18:48:00	711	663	NA	NA	18.60	7.06	8.01	166	131	3
18:52:00	711	663	NA	NA	18.60	6.62	7.96	166	131	3
18:56:00	711	663	NA	NA	18.60	6.72	7.86	166	131	3
19:00:00	737	663	NA	NA	48.70	6.35	8.21	166	131	3
19:04:00	737	677	NA	NA	20.00	6.18	8.21	166	131	3
19:08:00	670	626	NA	NA	17.00	17.48	1.22	286	10	3
19:12:00	614	578	NA	NA	17.00	16.53	2.30	361	10	3
19:16:00	594	578	NA	NA	14.20	16.53	2.30	325	10	3
19:20:00	580	559	NA	NA	14.20	16.29	2.30	325	10	3
19:24:00	580	542	NA	NA	14.20	16.29	2.30	325	10	3
19:28:00	580	542	NA	NA	14.20	16.29	2.30	325	10	3
19:32:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
19:36:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
19:40:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
19:44:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
19:48:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
19:52:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
19:56:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0
20:00:00	-4	-4	NA	NA	0.00	0.00	0.00	0	0	0

D082610.XLS

8/26/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:04:00	0.00	0.60	10.47	0.00	0.00	27.10	889	492	680	855
10:08:00	0.00	0.73	11.18	0.00	0.00	27.10	950	520	680	885
10:12:00	0.00	0.75	11.18	0.00	0.00	27.10	978	520	715	914
10:16:00	0.00	0.80	11.23	0.00	0.00	27.10	1257	577	740	944
10:20:00	0.00	1.00	11.70	0.00	0.00	27.10	1282	602	770	974
10:24:00	0.00	0.96	11.54	0.00	0.00	27.10	1282	602	770	974
10:28:00	0.00	0.92	11.33	0.00	0.00	27.10	1282	632	767	1002
10:32:00	0.00	0.88	10.86	0.00	0.00	29.70	1282	632	728	1002
10:36:00	0.00	0.72	11.52	0.00	0.00	29.70	1282	632	724	1027
10:40:00	0.00	0.69	11.22	0.00	0.00	29.70	1282	657	718	1027
10:44:00	0.00	0.72	11.33	0.00	0.00	29.70	1282	657	726	1056
10:48:00	0.00	0.75	11.32	0.00	0.00	29.70	1327	657	798	1056
10:52:00	0.00	0.84	11.66	0.00	0.00	29.70	1300	683	772	1056
10:56:00	0.00	0.94	11.48	0.00	0.00	29.70	1315	683	786	1056
11:00:00	0.00	0.87	11.42	0.00	0.00	29.70	1308	683	752	1086
11:04:00	0.00	0.81	11.60	0.00	0.00	29.70	1367	719	847	1086
11:08:00	0.00	0.68	11.03	0.00	0.00	29.70	1333	719	815	1086
11:12:00	0.00	0.69	10.68	0.00	0.00	29.70	1389	719	851	1086
11:16:00	0.00	0.73	11.64	0.00	0.00	29.70	1382	719	881	1112
11:20:00	0.00	0.76	11.44	0.00	0.00	29.70	1426	719	913	1112
11:24:00	0.00	0.93	11.71	0.00	0.00	29.70	1405	719	910	1112
11:28:00	0.00	1.06	11.61	0.00	0.00	29.70	1435	746	909	1146
11:32:00	0.00	0.98	11.78	0.00	0.00	32.50	1410	746	865	1146
11:36:00	0.00	0.95	11.64	0.00	0.00	32.50	1383	707	815	1175
11:40:00	0.00	0.76	11.74	0.00	0.00	32.50	1425	754	880	1175
11:44:00	0.00	0.75	11.26	0.00	0.00	32.50	1459	754	945	1201
11:48:00	0.00	0.78	11.64	0.00	0.00	32.50	1409	765	857	1201
11:52:00	0.00	0.81	11.79	0.00	0.00	32.50	1502	765	965	1229
11:56:00	0.00	0.85	11.50	0.00	0.00	32.50	1453	769	913	1229
12:00:00	0.00	0.90	11.14	0.00	0.00	33.30	1520	810	1003	1254

D082610.XLS

8/26/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:04:00	402	361	360	365	15.30	5.35	8.50	17	93	0
10:08:00	402	361	360	365	15.30	2.86	10.35	25	93	0
10:12:00	416	376	360	365	15.30	3.49	9.77	25	93	0
10:16:00	416	376	360	365	15.30	3.64	9.52	25	93	0
10:20:00	431	389	360	365	15.30	3.74	9.43	25	93	0
10:24:00	431	389	360	365	15.30	3.86	9.23	25	93	0
10:28:00	445	404	360	365	15.30	3.86	9.28	25	93	0
10:32:00	445	404	360	365	15.30	4.01	9.28	25	93	0
10:36:00	459	418	360	365	15.30	4.05	9.23	25	93	0
10:40:00	459	418	360	365	15.30	3.98	9.38	25	93	0
10:44:00	473	418	360	365	15.30	4.37	9.28	25	93	0
10:48:00	473	432	360	365	15.30	4.81	8.94	25	93	0
10:52:00	473	432	360	365	15.30	4.98	8.94	25	93	0
10:56:00	488	432	360	365	15.30	4.76	8.74	25	93	0
11:00:00	488	446	360	365	15.30	4.84	8.69	25	93	0
11:04:00	488	446	360	365	15.30	4.57	8.99	25	93	0
11:08:00	502	460	360	365	15.30	4.52	8.74	25	93	0
11:12:00	502	460	360	365	15.30	4.64	8.99	25	93	0
11:16:00	502	460	360	365	17.90	5.10	8.60	25	93	0
11:20:00	517	473	360	365	17.90	5.18	8.60	25	93	0
11:24:00	517	473	360	365	17.90	5.23	8.60	25	93	0
11:28:00	517	473	360	365	17.90	4.35	9.23	25	93	0
11:32:00	530	487	360	365	17.90	3.81	9.28	25	93	0
11:36:00	530	487	360	365	17.90	3.35	9.48	25	93	0
11:40:00	530	487	360	365	17.90	3.30	9.77	25	93	0
11:44:00	543	501	360	365	17.90	3.05	10.01	25	93	0
11:48:00	543	501	360	365	17.90	3.27	10.01	25	93	0
11:52:00	543	501	360	365	17.90	3.49	9.82	25	303	0
11:56:00	558	514	360	365	17.90	3.86	9.57	25	157	0
12:00:00	561	520	359	364	17.80	3.91	9.52	17	154	0

D082612.XLS

8/26/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.90	11.14	0.00	0.00	33.30	1520	810	1003	1254
12:04:00	0.00	1.07	11.09	0.00	0.00	33.30	1519	811	1003	1254
12:08:00	0.00	1.03	11.33	0.00	0.00	33.30	1519	811	1032	1254
12:12:00	0.00	0.99	11.82	0.00	0.00	33.30	1517	811	1030	1254
12:16:00	0.00	0.95	11.30	0.00	0.00	33.30	1544	843	1045	1284
12:20:00	0.00	0.84	11.25	0.00	0.00	33.30	1575	843	1095	1284
12:24:00	0.00	0.86	11.09	0.00	0.00	35.90	1575	887	1064	1284
12:28:00	0.00	0.93	11.42	0.00	0.00	35.90	1632	887	1156	1318
12:32:00	0.00	0.98	11.42	0.00	0.00	38.50	1632	923	1156	1343
12:36:00	0.00	1.03	11.42	0.00	0.00	38.50	1632	923	1156	1343
12:40:00	0.00	1.15	11.25	0.00	0.00	38.50	1606	913	1083	1343
12:44:00	0.00	1.12	11.38	0.00	0.00	38.50	1606	912	1031	1369
12:48:00	0.00	1.10	11.56	0.00	0.00	38.50	1683	974	1249	1369
12:52:00	0.00	1.07	11.56	0.00	0.00	53.20	1700	974	1278	1399
12:56:00	0.00	1.06	11.30	0.00	0.00	56.90	1687	974	1274	1399
13:00:00	0.00	1.01	11.43	0.00	0.00	77.10	1815	990	1375	1399
13:04:00	0.00	0.91	11.43	0.00	0.00	87.60	1815	990	1338	1399
13:08:00	0.00	0.93	11.43	0.00	0.00	95.50	1815	990	1338	1399
13:12:00	0.00	0.96	11.43	0.00	0.00	98.60	1758	936	137	1371
13:16:00	0.00	0.98	11.43	0.00	0.00	119.70	1872	936	1379	1371
13:20:00	0.00	0.97	10.62	0.00	0.00	164.70	1901	968	1349	1338
13:24:00	0.00	0.97	9.59	0.00	0.00	183.30	1868	968	1292	1303
13:28:00	0.00	1.04	8.68	1.74	0.00	193.40	1828	968	1263	1261
13:32:00	0.00	1.00	7.70	1.59	0.00	199.60	1768	968	1231	1223
13:36:00	0.00	0.54	7.18	1.59	0.00	211.30	1726	968	1197	1194
13:40:00	0.00	0.67	6.31	1.59	0.00	218.90	1681	968	1170	1167
13:44:00	0.00	1.03	7.70	1.94	0.00	211.20	1336	968	1046	1131
13:48:00	0.00	1.05	9.81	1.63	0.00	179.40	1190	953	991	1169
13:52:00	0.00	0.95	9.15	1.38	0.00	179.40	1535	979	1116	1202
13:56:00	0.00	0.78	9.72	1.38	0.00	182.00	1570	979	1147	1202
14:00:00	0.00	0.83	9.21	1.36	0.00	181.10	1596	999	1142	1238

D082612.XLS

8/26/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	561	520	359	364	17.80	3.91	9.52	17	154	0
12:04:00	561	520	359	364	17.80	3.71	9.48	17	154	0
12:08:00	561	520	359	364	17.80	4.01	9.18	17	154	0
12:12:00	575	534	359	364	17.80	4.08	9.23	17	154	0
12:16:00	575	534	359	364	17.80	4.03	9.23	17	154	0
12:20:00	575	534	359	364	17.80	4.23	9.13	17	154	0
12:24:00	590	547	359	364	17.80	3.79	9.57	17	154	0
12:28:00	603	561	359	364	17.80	3.69	9.72	17	154	0
12:32:00	603	561	359	364	17.80	4.20	9.43	17	154	0
12:36:00	619	574	359	364	17.80	4.47	9.18	17	154	0
12:40:00	619	574	359	364	17.80	4.57	8.99	17	154	0
12:44:00	619	589	359	364	17.80	4.57	8.89	17	154	0
12:48:00	619	589	359	364	21.70	4.40	8.94	17	154	0
12:52:00	662	620	359	364	40.20	3.93	9.33	17	154	0
12:56:00	678	650	359	364	45.00	3.81	9.33	17	154	0
13:00:00	715	672	359	364	70.80	3.88	9.48	17	154	0
13:04:00	730	705	359	364	80.70	3.91	9.48	17	267	0
13:08:00	746	721	359	364	87.80	4.15	9.38	17	267	0
13:12:00	746	721	359	364	90.80	4.15	9.38	17	267	0
13:16:00	766	754	359	364	115.00	4.15	9.38	17	267	0
13:20:00	806	795	359	364	161.40	3.64	9.48	17	267	0
13:24:00	821	813	359	364	179.90	2.83	10.16	17	267	0
13:28:00	836	813	359	364	190.00	3.25	9.57	17	442	0
13:32:00	836	829	359	364	196.40	5.03	8.50	17	335	0
13:36:00	849	829	359	364	208.30	4.71	8.84	17	225	0
13:40:00	849	815	359	364	216.10	5.57	8.21	17	225	0
13:44:00	849	815	359	364	207.10	5.15	8.45	17	125	0
13:48:00	849	802	359	364	174.60	5.23	8.16	17	247	0
13:52:00	849	802	359	364	177.80	4.98	8.50	17	247	0
13:56:00	849	802	359	364	177.80	4.98	8.79	17	349	0
14:00:00	863	815	367	376	177.00	4.74	8.84	17	381	0

D082614.XLS

8/26/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.00	0.83	9.21	1.36	0.00	181.10	1596	999	1142	1238
14:04:00	0.00	0.87	8.83	1.36	0.00	181.10	1494	999	1082	1238
14:08:00	0.00	0.92	9.71	1.36	0.00	181.10	1691	999	1219	1238
14:12:00	0.00	0.96	9.25	1.36	0.00	181.10	1649	999	1188	1238
14:16:00	0.00	1.10	9.17	1.36	0.00	181.10	1639	999	1185	1267
14:20:00	0.00	0.80	9.64	1.36	0.00	181.10	1590	999	1192	1267
14:24:00	0.00	0.54	9.29	1.22	0.00	178.10	1451	999	1101	1210
14:28:00	0.00	0.66	8.95	0.00	0.00	171.50	1574	999	1173	1177
14:32:00	0.00	0.53	8.02	0.70	0.00	171.50	1350	971	1057	1177
14:36:00	0.00	0.60	7.45	0.00	0.00	168.10	1206	971	917	1147
14:40:00	0.00	0.52	6.81	0.73	0.00	164.90	1415	971	1054	1147
14:44:00	0.00	0.54	6.45	0.73	0.00	164.90	1239	971	949	1122
14:48:00	0.00	0.47	6.48	0.73	0.00	162.10	1252	945	950	1122
14:52:00	0.00	0.72	6.31	0.73	0.00	164.70	1471	945	1076	1122
14:56:00	0.00	0.43	6.31	0.73	0.00	168.20	1388	945	1042	1091
15:00:00	0.00	0.36	6.68	0.73	0.00	171.00	1388	945	1042	1091
15:04:00	0.00	0.32	6.83	0.73	0.00	171.00	1362	945	1042	1063
15:08:00	0.00	0.32	6.62	0.73	0.00	173.80	1332	919	1013	1038
15:12:00	0.00	0.32	6.96	0.73	0.00	173.80	1300	919	1013	1038
15:16:00	0.00	0.32	6.96	0.73	0.00	173.80	1300	919	1013	1008
15:20:00	0.00	0.31	6.62	0.73	0.00	193.40	1333	919	1013	1008
15:24:00	0.00	0.22	5.82	0.62	0.00	212.90	1290	919	1013	1008
15:28:00	0.00	0.19	5.25	0.76	0.00	221.70	1235	888	978	980
15:32:00	0.00	0.23	6.41	0.76	0.00	221.70	1185	888	951	952
15:36:00	0.00	0.33	8.10	0.76	0.00	174.80	724	689	656	925
15:40:00	0.00	0.33	7.34	0.76	0.00	134.70	692	617	561	925
15:44:00	0.00	0.33	7.01	0.76	0.00	112.50	723	617	561	951
15:48:00	0.00	0.35	6.38	0.76	0.00	92.80	966	763	765	978
15:52:00	0.00	0.34	6.79	0.76	0.00	92.80	1190	838	952	978
15:56:00	0.00	0.34	6.52	0.76	0.00	75.30	724	550	513	978
16:00:00	0.00	0.34	6.73	0.75	0.00	58.80	746	549	529	996

D082614.XLS

8/26/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	863	815	367	376	177.00	4.74	8.84	17	381	0
14:04:00	863	815	367	376	177.00	4.74	8.84	17	381	0
14:08:00	863	815	367	376	177.00	4.69	8.84	17	381	0
14:12:00	876	829	367	376	177.00	4.45	8.84	17	381	0
14:16:00	876	829	367	376	177.00	4.45	8.84	17	381	0
14:20:00	876	829	367	376	177.00	5.23	8.30	17	381	0
14:24:00	876	829	367	376	174.00	9.35	6.11	17	144	0
14:28:00	861	829	367	376	170.40	9.35	6.11	17	144	0
14:32:00	861	815	367	376	170.40	8.42	6.64	17	144	0
14:36:00	861	815	367	376	164.70	7.81	6.99	17	144	0
14:40:00	847	815	367	376	161.90	7.30	7.33	17	144	0
14:44:00	847	801	367	376	161.90	6.59	7.57	17	144	0
14:48:00	847	801	367	376	158.90	6.91	7.57	17	144	0
14:52:00	832	801	334	376	161.90	6.91	7.57	17	144	0
14:56:00	819	801	307	409	165.20	7.20	7.33	17	144	0
15:00:00	819	801	307	409	168.20	8.01	6.79	17	144	0
15:04:00	819	788	338	409	168.20	9.04	6.25	17	144	0
15:08:00	805	788	338	409	170.90	9.79	5.62	17	144	0
15:12:00	805	788	365	409	170.90	10.01	5.33	17	144	0
15:16:00	805	788	365	409	170.90	10.23	5.33	17	144	0
15:20:00	805	788	365	409	191.00	10.48	5.33	17	144	0
15:24:00	805	788	365	438	210.30	10.23	5.33	17	144	0
15:28:00	805	771	365	438	219.00	10.52	4.98	17	42	0
15:32:00	791	771	365	406	219.00	11.82	4.30	17	42	0
15:36:00	776	756	365	378	170.10	11.89	3.81	17	42	0
15:40:00	760	741	365	378	130.70	11.18	4.15	17	42	0
15:44:00	760	741	365	378	108.90	10.92	4.54	17	42	0
15:48:00	745	724	365	378	88.50	10.06	4.93	29	42	0
15:52:00	745	724	365	378	88.50	10.11	5.18	29	42	0
15:56:00	745	710	365	378	69.80	9.89	5.18	29	42	0
16:00:00	728	691	358	370	53.60	9.94	5.18	29	56	0

D082808.XLS

8/28/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.00	0.90	11.23	0.00	0.00	29.00	906	440	680	836
8:36:00	0.00	0.70	11.45	0.00	0.00	29.00	940	440	707	865
8:40:00	0.00	0.72	11.11	0.00	0.00	29.00	940	466	707	895
8:44:00	0.00	0.75	11.37	0.00	0.00	29.00	965	466	733	895
8:48:00	0.00	0.78	11.72	0.00	0.00	29.00	965	466	760	931
8:52:00	0.00	0.91	11.65	0.00	0.00	29.00	994	500	760	975
8:56:00	0.00	0.95	11.26	0.00	0.00	29.00	994	500	760	1002
9:00:00	0.00	0.90	11.43	0.00	0.00	29.00	1022	500	760	1002
9:04:00	0.00	0.88	11.58	0.00	0.00	29.00	1022	500	760	1028
9:08:00	0.00	0.82	10.90	0.00	0.00	29.00	1059	529	756	1028
9:12:00	0.00	0.70	11.39	0.00	0.00	29.00	1075	548	789	1056
9:16:00	0.00	0.72	11.45	0.00	0.00	29.00	1062	548	784	1056
9:20:00	0.00	0.74	10.94	0.00	0.00	29.00	1062	548	762	1056
9:24:00	0.00	0.75	11.65	0.00	0.00	29.00	1071	548	799	1056
9:28:00	0.00	0.77	10.71	0.00	0.00	29.00	1071	577	750	1086
9:32:00	0.00	0.80	11.46	0.00	0.00	29.00	1071	577	779	1086
9:36:00	0.00	0.91	10.65	0.00	0.00	29.00	1071	592	779	1086
9:40:00	0.00	1.00	11.49	0.00	0.00	29.00	1078	561	804	1114
9:44:00	0.00	0.98	11.46	0.00	0.00	29.00	1108	607	804	1114
9:48:00	0.00	0.95	10.93	0.00	0.00	29.00	1135	615	833	1114
9:52:00	0.00	0.92	10.80	0.00	0.00	29.00	1120	594	767	1140
9:56:00	0.00	0.91	11.82	0.00	0.00	31.80	1120	594	784	1140
10:00:00	0.00	0.85	11.39	0.00	0.00	32.50	1192	651	884	1153

D082808.XLS

8/28/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	382	211	354	359	15.30	3.64	9.33	0	240	0
8:36:00	398	211	354	359	15.30	4.03	9.28	0	240	0
8:40:00	398	211	354	359	15.30	4.25	9.28	0	240	0
8:44:00	413	211	354	359	15.30	4.10	9.28	0	240	0
8:48:00	413	211	354	359	15.30	3.86	9.38	0	240	0
8:52:00	428	211	354	359	15.30	3.64	9.48	0	240	0
8:56:00	428	211	354	359	15.30	3.37	9.52	0	240	0
9:00:00	428	211	354	359	15.30	3.59	9.52	0	240	0
9:04:00	443	211	354	359	15.30	3.62	9.52	0	240	0
9:08:00	443	211	354	359	15.30	3.96	9.38	0	240	0
9:12:00	459	211	354	359	15.30	4.47	9.09	0	240	0
9:16:00	459	211	354	359	15.30	4.54	9.09	0	240	0
9:20:00	474	211	354	359	15.30	4.69	9.09	0	240	0
9:24:00	474	211	354	359	15.30	4.88	8.84	0	240	0
9:28:00	474	211	354	359	15.30	4.96	8.74	0	240	0
9:32:00	488	211	354	359	15.30	4.86	8.79	0	240	0
9:36:00	488	211	354	359	15.30	4.54	8.84	0	240	0
9:40:00	488	211	354	359	15.30	4.59	8.79	0	240	0
9:44:00	502	211	354	359	15.30	4.67	8.79	0	240	0
9:48:00	502	211	354	359	15.30	4.47	8.79	0	240	0
9:52:00	502	225	354	359	15.30	4.74	8.79	0	240	0
9:56:00	515	225	354	359	15.30	4.79	8.79	0	240	0
10:00:00	520	226	357	361	15.40	5.10	8.69	3	213	0

D082810.XLS

8/28/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.85	11.39	0.00	0.00	32.50	1192	651	884	1153
10:04:00	0.00	0.69	11.59	0.00	0.00	32.50	1193	651	872	1153
10:08:00	0.00	0.70	11.30	0.00	0.00	32.50	1193	651	868	1153
10:12:00	0.00	0.72	10.86	0.00	0.00	32.50	1193	682	824	1153
10:16:00	0.00	0.76	11.34	0.00	0.00	35.30	1258	711	894	1153
10:20:00	0.00	0.77	10.83	0.00	0.00	35.30	1258	718	785	1153
10:24:00	0.00	0.79	11.28	0.00	0.00	35.30	1412	409	874	1179
10:28:00	0.00	0.81	11.41	0.00	0.00	35.30	1422	744	881	1179
10:32:00	0.00	0.84	11.60	0.00	0.00	35.30	1417	744	913	1179
10:36:00	0.00	0.91	11.59	0.00	0.00	35.30	1415	744	948	1179
10:40:00	0.00	1.03	11.57	0.00	0.00	35.30	1424	775	960	1205
10:44:00	0.00	1.01	11.46	0.00	0.00	35.30	1425	775	972	1205
10:48:00	0.00	0.99	11.59	0.00	0.00	35.30	1437	775	983	1205
10:52:00	0.00	0.97	11.43	0.00	0.00	35.30	1440	775	962	1205
10:56:00	0.00	0.95	11.43	0.00	0.00	35.30	1398	775	888	1205
11:00:00	0.00	0.93	11.55	0.00	0.00	35.30	1461	804	990	1232
11:04:00	0.00	0.80	11.55	0.00	0.00	35.30	1460	806	987	1232
11:08:00	1.45	0.74	10.88	0.00	0.00	35.30	1434	779	904	1232
11:12:00	2.48	0.75	11.54	0.00	0.00	35.30	1474	817	972	1232
11:16:00	1.23	0.79	11.65	0.00	0.00	35.30	1502	835	1031	1262
11:20:00	1.24	0.84	11.77	0.00	0.00	35.30	1502	835	1048	1262
11:24:00	0.69	0.85	11.82	0.00	0.00	38.10	1520	846	1052	1262
11:28:00	0.69	0.85	11.82	0.00	0.00	38.10	1525	853	1065	1289
11:32:00	0.69	0.85	11.82	0.00	0.00	38.10	1526	851	1031	1289
11:36:00	0.69	0.87	11.62	0.00	0.00	38.10	1492	851	936	1289
11:40:00	0.69	0.88	11.82	0.00	0.00	38.10	1529	880	1096	1289
11:44:00	0.69	0.90	11.82	0.00	0.00	38.10	1542	866	1011	1317
11:48:00	0.69	0.91	11.82	0.00	0.00	38.10	1570	900	1115	1317
11:52:00	0.69	0.97	11.82	0.00	0.00	38.10	1561	859	1085	1317
11:56:00	0.69	1.00	11.82	0.00	0.00	38.10	1561	911	1070	1344
12:00:00	0.70	1.07	11.82	0.00	0.00	38.80	1590	902	1119	1356

D082810.XLS

8/28/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	520	226	357	361	15.40	5.10	8.69	3	213	0
10:04:00	520	226	357	361	15.40	5.86	8.21	3	213	0
10:08:00	535	226	357	361	15.40	6.37	8.06	3	213	0
10:12:00	535	226	357	361	15.40	6.64	7.77	3	213	0
10:16:00	535	226	357	361	15.40	6.94	7.77	3	213	0
10:20:00	550	226	357	361	15.40	7.13	7.77	3	213	0
10:24:00	550	226	357	361	15.40	7.23	7.77	3	213	0
10:28:00	564	242	357	361	15.40	7.28	7.47	3	213	0
10:32:00	564	122	357	361	15.40	7.28	7.47	3	213	0
10:36:00	564	232	357	361	15.40	7.20	7.47	3	213	0
10:40:00	577	232	357	361	15.40	6.91	7.52	3	213	0
10:44:00	577	232	357	361	15.40	6.91	7.77	3	213	0
10:48:00	577	232	357	361	15.40	6.91	7.77	3	213	0
10:52:00	577	232	357	361	15.40	6.69	7.77	3	213	0
10:56:00	591	232	357	361	15.40	6.62	7.77	3	213	0
11:00:00	591	232	357	361	15.40	6.59	7.77	3	213	0
11:04:00	591	232	357	361	15.40	6.72	7.86	3	213	0
11:08:00	591	232	357	361	15.40	6.76	7.86	3	213	0
11:12:00	605	251	357	361	15.40	6.79	7.86	3	213	0
11:16:00	605	251	357	361	15.40	6.54	7.86	3	213	0
11:20:00	605	251	357	361	15.40	6.30	7.86	3	213	0
11:24:00	620	251	357	361	15.40	6.59	8.01	0	213	0
11:28:00	620	251	357	361	15.40	6.67	8.01	0	213	0
11:32:00	620	251	357	361	15.40	6.74	8.01	0	213	0
11:36:00	633	251	357	361	15.40	6.84	8.01	0	213	0
11:40:00	633	260	357	361	15.40	6.91	7.77	0	213	0
11:44:00	633	259	357	361	15.40	6.94	7.77	0	213	0
11:48:00	633	401	357	361	15.40	6.94	7.67	0	213	0
11:52:00	648	437	357	361	15.40	6.91	7.67	0	213	0
11:56:00	648	401	357	361	15.40	6.13	8.11	0	213	0
12:00:00	659	465	359	364	15.90	6.08	8.16	3	196	0

D082812.XLS

8/28/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.70	1.07	11.82	0.00	0.00	38.80	1590	902	1119	1356
12:04:00	0.66	1.08	11.82	0.00	0.00	41.60	1628	936	1146	1356
12:08:00	0.66	1.07	11.82	0.00	0.00	41.60	1629	931	1180	1356
12:12:00	0.66	1.07	11.82	0.00	0.00	41.60	1594	897	1077	1382
12:16:00	0.66	1.08	11.82	0.00	0.00	41.60	1622	924	1186	1382
12:20:00	0.70	1.08	11.82	0.00	0.00	41.60	1622	936	1155	1382
12:24:00	0.70	1.07	11.82	0.00	0.00	41.60	1613	936	1037	1409
12:28:00	0.66	1.07	11.82	0.00	0.00	41.60	1656	936	1198	1409
12:32:00	0.66	1.08	11.82	0.00	0.00	41.60	1656	936	1205	1435
12:36:00	0.66	1.08	11.82	0.00	0.00	41.60	1668	934	1145	1435
12:40:00	0.66	1.07	11.82	0.00	0.00	41.60	1662	951	1073	1470
12:44:00	0.71	0.97	11.82	0.00	0.00	41.60	1714	980	1150	1470
12:48:00	0.67	1.00	11.82	0.00	0.00	41.60	1741	980	1243	1497
12:52:00	0.67	1.03	11.82	0.00	0.00	41.60	1741	1009	1243	1523
12:56:00	0.67	1.07	11.82	0.00	0.00	41.60	1769	1020	1256	1523
13:00:00	0.67	1.11	11.82	0.00	0.00	41.60	1743	989	1134	1523
13:04:00	0.67	1.17	11.82	0.00	0.00	41.60	1743	989	1164	1551
13:08:00	0.71	1.16	11.82	0.00	0.00	41.60	1768	989	1208	1551
13:12:00	0.68	1.13	11.82	0.00	0.00	41.60	1798	1024	1327	1551
13:16:00	0.68	1.11	11.82	0.00	0.26	44.40	1822	1054	1383	1581
13:20:00	0.68	0.79	11.82	0.00	0.26	80.90	1875	1107	1504	1574
13:24:00	0.68	0.60	11.82	0.00	0.26	89.20	1763	1071	1409	1463
13:28:00	0.68	0.64	11.43	0.00	0.26	127.30	1763	1071	1437	1420
13:32:00	0.68	0.93	11.11	0.00	0.26	152.60	1737	1037	1381	1341
13:36:00	0.68	0.59	10.09	0.00	0.26	156.10	1667	1009	1291	1308
13:40:00	0.68	0.63	11.07	0.00	0.27	156.10	1667	1009	1291	1276
13:44:00	0.68	0.97	10.95	0.00	0.25	156.10	1620	1009	1260	1276
13:48:00	0.68	0.59	10.86	0.00	0.48	156.10	1633	1009	1260	1250
13:52:00	0.67	0.63	9.76	0.00	0.48	159.70	1593	1009	1260	1250
13:56:00	0.37	0.97	10.68	0.00	0.48	159.70	1538	1009	1234	1222
14:00:00	0.40	0.59	10.80	0.00	0.48	159.60	1528	996	1208	1204

D082812.XLS

8/28/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	659	465	359	364	15.90	6.08	8.16	3	196	0
12:04:00	659	512	359	364	22.70	6.01	8.11	3	196	0
12:08:00	673	442	359	364	22.70	5.96	8.16	3	196	0
12:12:00	673	463	359	364	22.70	5.96	8.45	3	196	0
12:16:00	673	500	359	364	22.70	5.74	8.45	3	196	0
12:20:00	688	486	359	364	22.70	5.13	8.45	3	196	0
12:24:00	688	513	359	364	22.70	4.98	8.69	3	196	0
12:28:00	688	527	359	364	22.70	4.91	8.69	3	381	0
12:32:00	702	563	359	364	22.70	4.32	9.18	3	272	0
12:36:00	702	592	359	364	22.70	4.23	9.33	3	272	0
12:40:00	702	562	359	364	22.70	3.88	9.62	3	266	0
12:44:00	716	613	359	364	22.70	3.98	9.62	3	266	0
12:48:00	716	627	359	364	22.70	3.91	9.82	3	266	0
12:52:00	716	627	359	364	22.70	3.86	9.77	3	266	0
12:56:00	730	643	359	364	22.70	3.86	9.77	3	266	0
13:00:00	730	680	359	364	22.70	3.79	9.67	3	266	0
13:04:00	730	680	359	364	22.70	3.79	9.62	3	371	0
13:08:00	743	647	359	364	22.70	3.64	9.62	3	371	0
13:12:00	743	686	359	364	22.70	3.54	9.72	3	371	0
13:16:00	743	701	359	364	22.70	3.30	9.96	3	371	0
13:20:00	819	763	359	364	74.10	5.37	8.26	3	259	0
13:24:00	819	781	359	364	85.10	10.43	5.62	3	139	0
13:28:00	847	817	359	364	123.80	10.04	5.62	3	139	0
13:32:00	847	817	359	392	148.80	9.65	5.96	3	139	0
13:36:00	847	830	359	392	152.30	9.40	5.96	3	139	0
13:40:00	847	830	359	392	149.70	9.40	6.20	3	139	0
13:44:00	847	830	359	392	149.70	9.40	6.20	3	139	0
13:48:00	847	830	359	392	152.30	9.40	5.96	3	139	0
13:52:00	847	830	359	392	155.40	9.65	5.96	3	139	0
13:56:00	847	830	359	392	155.40	9.65	5.96	3	39	0
14:00:00	852	840	361	379	155.30	9.67	5.96	0	100	0

D082814.XLS

8/28/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.40	0.59	10.80	0.00	0.48	159.60	1528	996	1208	1204
14:04:00	1.21	0.63	10.76	0.00	0.33	159.60	1438	996	1142	1204
14:08:00	0.28	0.97	10.84	0.00	0.43	156.80	1490	996	1181	1204
14:12:00	0.69	0.59	10.83	0.00	0.48	156.80	1515	996	1195	1204
14:16:00	0.24	0.63	10.45	0.00	0.46	156.80	1431	996	1115	1204
14:20:00	0.45	0.96	10.93	0.00	0.25	156.80	1454	996	1157	1204
14:24:00	0.43	0.59	10.30	0.00	0.42	156.80	1368	996	1064	1204
14:28:00	1.91	0.63	10.84	0.00	0.43	159.60	1512	996	1190	1204
14:32:00	2.02	0.94	10.80	0.00	0.43	159.60	1384	996	1093	1174
14:36:00	0.04	0.60	10.03	0.00	0.21	159.60	1280	996	961	1174
14:40:00	2.71	0.64	11.06	0.00	0.20	156.90	1338	996	1128	1174
14:44:00	1.23	0.00	8.95	0.00	0.20	120.90	968	634	650	1111
14:48:00	1.44	0.00	5.71	0.00	0.13	74.90	933	579	609	1047
14:52:00	3.50	0.00	5.08	0.00	0.13	47.90	958	548	576	1047
14:56:00	0.46	0.00	4.88	0.00	0.13	21.70	933	594	627	1000
15:00:00	1.43	0.00	3.27	0.00	0.06	18.30	996	728	811	1000
15:04:00	3.17	0.00	1.63	0.00	0.00	15.70	1044	747	813	1000
15:08:00	3.25	0.00	0.01	0.00	0.00	15.70	1091	772	846	1000
15:12:00	3.50	0.00	1.37	0.00	0.00	15.70	1120	772	846	974
15:16:00	0.60	0.00	1.54	0.00	0.00	15.70	1120	772	846	946
15:20:00	3.49	0.00	1.14	0.00	0.00	15.70	1120	772	846	918
15:24:00	0.56	0.00	1.54	0.00	0.00	15.70	1120	772	846	885
15:28:00	0.10	0.00	0.01	0.00	0.00	15.70	1120	772	846	850
15:32:00	2.74	0.00	1.23	0.00	0.00	15.70	1120	772	872	814
15:36:00	3.50	0.00	1.45	0.00	0.00	15.70	1120	772	872	814
15:40:00	0.40	0.00	0.01	0.00	0.00	15.70	1120	772	872	782
15:44:00	1.33	0.00	0.01	0.00	0.00	15.70	1120	746	872	748
15:48:00	2.83	0.00	1.30	0.00	0.00	15.70	1120	746	872	706
15:52:00	0.77	0.00	0.01	0.00	0.00	15.70	1120	746	872	637
15:56:00	3.50	0.00	1.28	0.00	0.00	15.70	1120	746	872	609
16:00:00	3.46	0.00	0.01	0.00	0.00	15.50	1109	752	865	576

D082814.XLS

8/28/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	852	840	361	379	155.30	9.67	5.96	0	100	0
14:04:00	852	840	361	379	155.30	9.67	5.96	0	100	0
14:08:00	852	840	361	379	152.50	9.35	5.96	0	100	0
14:12:00	852	840	361	379	152.50	9.35	5.96	0	100	0
14:16:00	852	840	361	379	152.50	9.60	5.96	0	100	0
14:20:00	852	840	361	379	152.50	9.28	5.96	0	100	0
14:24:00	852	840	361	379	152.50	9.28	5.96	0	100	0
14:28:00	852	840	361	379	156.30	9.52	5.96	0	100	0
14:32:00	852	840	361	379	156.30	9.30	6.20	0	100	0
14:36:00	852	840	361	379	156.30	7.81	7.47	0	100	0
14:40:00	852	840	361	379	153.20	8.79	6.45	0	100	0
14:44:00	829	823	361	379	114.40	13.48	2.88	15	100	0
14:48:00	789	776	361	379	70.30	15.36	1.37	71	100	0
14:52:00	773	745	361	379	43.70	16.14	1.13	103	100	0
14:56:00	724	708	361	379	15.70	16.63	0.88	144	100	0
15:00:00	710	693	361	379	15.70	17.53	0.88	186	100	0
15:04:00	710	679	361	379	15.70	17.63	0.98	122	100	0
15:08:00	695	666	361	379	15.70	17.63	0.98	71	100	0
15:12:00	680	666	361	379	15.70	17.63	0.98	27	100	0
15:16:00	680	651	361	379	15.70	17.63	0.98	15	100	0
15:20:00	667	651	361	379	15.70	17.63	1.22	15	100	0
15:24:00	667	637	361	379	15.70	17.63	1.22	15	100	0
15:28:00	667	637	361	379	15.70	17.63	1.22	15	100	0
15:32:00	652	637	361	379	15.70	17.63	1.22	15	100	0
15:36:00	652	624	361	379	15.70	17.63	1.22	15	100	0
15:40:00	652	624	361	379	15.70	17.63	1.22	15	100	0
15:44:00	639	624	361	379	15.70	17.63	1.22	15	100	0
15:48:00	639	609	361	379	15.70	17.41	1.22	15	100	0
15:52:00	639	609	335	379	15.70	17.41	1.22	15	100	0
15:56:00	626	609	306	379	15.70	17.41	1.22	15	100	0
16:00:00	623	599	268	373	13.70	1.34	1.08	7	3	13

D082816.XLS

8/28/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	3.46	0.00	0.01	0.00	0.00	15.50	1109	752	865	576
16:04:00	2.53	0.00	0.01	0.00	0.00	15.50	1109	752	865	537
16:08:00	3.20	0.00	0.01	0.00	0.00	15.50	1109	752	865	510
16:12:00	0.86	0.00	0.01	0.00	0.00	15.50	1109	752	865	510
16:16:00	3.24	0.00	0.01	0.00	0.00	15.50	1082	752	865	483
16:20:00	0.40	0.00	0.01	0.00	0.00	15.50	1082	752	865	456
16:24:00	0.88	0.00	0.01	0.00	0.00	15.50	1082	752	865	456
16:28:00	0.78	0.00	0.01	0.00	0.00	15.50	1082	752	865	430
16:32:00	1.25	0.00	0.01	0.00	0.00	15.50	1082	752	865	430
16:36:00	1.20	0.00	0.01	0.00	0.00	15.50	1082	752	865	430
16:40:00	1.22	0.00	0.01	0.00	0.00	15.50	1082	727	840	404
16:44:00	0.00	0.00	0.01	0.00	0.00	15.50	1082	727	840	404
16:48:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	376
16:52:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	376
16:56:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	376
17:00:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	350
17:04:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	350
17:08:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	350
17:12:00	0.00	0.00	0.01	0.00	0.00	15.50	1056	727	840	350
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D082816.XLS

8/28/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	623	599	268	373	13.70	1.34	1.08	7	3	13
16:04:00	623	599	268	373	13.70	3.64	1.08	7	3	13
16:08:00	623	599	240	373	13.70	4.27	1.08	7	3	13
16:12:00	623	599	240	373	13.70	4.49	1.08	7	3	13
16:16:00	623	586	240	373	13.70	4.49	1.08	7	3	13
16:20:00	609	586	215	373	13.70	4.49	1.08	7	3	13
16:24:00	609	586	215	373	13.70	4.49	1.08	7	3	13
16:28:00	609	586	215	373	13.70	4.49	1.08	7	3	13
16:32:00	609	573	215	373	13.70	4.49	1.08	7	3	13
16:36:00	596	573	215	373	13.70	4.49	1.08	7	3	13
16:40:00	596	573	215	373	13.70	4.49	1.08	7	3	13
16:44:00	596	573	215	373	13.70	4.49	1.08	7	3	13
16:48:00	596	573	215	373	13.70	4.49	1.08	7	3	13
16:52:00	596	573	215	373	13.70	4.49	1.08	7	3	13
16:56:00	596	573	215	373	13.70	4.71	1.08	7	3	13
17:00:00	583	559	215	373	13.70	4.71	1.08	7	3	13
17:04:00	583	559	215	373	13.70	4.71	1.08	7	3	13
17:08:00	583	559	215	373	13.70	4.71	1.08	7	3	13
17:12:00	583	559	215	373	13.70	4.93	1.08	7	3	13
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

[redacted]

D082908.XLS

8/29/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.09	0.41	5.99	0.00	0.35	19.90	512	428	532	578
8:28:00	0.13	0.47	7.27	0.00	0.36	19.90	541	462	594	638
8:32:00	0.17	0.50	8.40	0.00	0.37	22.70	604	487	594	676
8:36:00	0.17	0.59	9.29	0.00	0.36	25.70	635	487	670	717
8:40:00	0.20	0.58	10.05	0.00	0.35	25.70	701	526	698	791
8:44:00	0.20	0.62	10.23	0.00	0.35	28.60	731	555	728	828
8:48:00	0.20	0.93	10.23	0.00	0.36	28.60	796	555	795	893
8:52:00	0.11	0.89	10.01	0.00	0.37	28.60	828	580	822	952
8:56:00	0.18	0.80	10.45	0.00	0.36	28.60	858	580	854	1007
9:00:00	0.11	0.76	10.89	0.00	0.36	28.60	897	606	854	1058
9:04:00	0.15	0.79	11.47	0.00	0.36	28.60	930	642	888	1084
9:08:00	0.15	0.83	11.48	0.00	0.36	31.40	961	642	917	1110
9:12:00	0.11	0.89	11.68	0.00	0.36	31.40	961	642	917	1143
9:16:00	0.16	0.96	11.53	0.00	0.36	31.40	989	686	949	1143
9:20:00	0.16	0.94	11.82	0.00	0.38	31.40	1042	686	710	1176
9:24:00	0.27	0.91	11.63	0.00	0.36	31.40	1341	686	1000	1176
9:28:00	0.17	0.89	11.82	0.00	0.36	31.40	1367	699	1000	1208
9:32:00	0.23	0.88	11.33	0.00	0.38	31.40	1308	699	923	1208
9:36:00	0.19	0.84	11.06	0.00	0.38	31.40	1327	729	931	1236
9:40:00	0.12	0.75	11.57	0.00	0.38	31.40	1404	729	1004	1236
9:44:00	0.19	0.76	11.57	0.00	0.39	34.20	1456	766	1056	1267
9:48:00	0.24	0.77	11.62	0.00	0.38	46.90	1604	831	1182	1301
9:52:00	0.17	0.80	11.04	0.00	0.38	58.20	1545	831	1083	1260
9:56:00	0.17	0.82	11.40	0.00	0.38	58.20	1494	805	1045	1260
10:00:00	0.15	0.83	11.56	0.00	0.38	60.10	1497	809	1037	1244

D082908.XLS

8/29/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	322	296	297	322	14.20	8.03	7.08	5	74	0
8:28:00	337	311	340	349	14.20	6.50	7.86	5	74	0
8:32:00	357	326	340	349	14.20	6.96	7.72	5	74	0
8:36:00	389	339	340	349	14.20	7.52	7.52	5	74	0
8:40:00	404	361	340	349	14.20	7.01	7.62	5	74	0
8:44:00	419	374	340	349	14.20	7.67	7.13	5	74	0
8:48:00	436	390	340	349	14.20	4.81	8.94	5	177	0
8:52:00	451	405	340	349	14.20	2.98	10.01	5	177	0
8:56:00	465	419	365	349	14.20	2.08	10.60	5	177	0
9:00:00	465	419	365	349	14.20	1.93	10.75	20	177	0
9:04:00	480	432	365	349	14.20	2.52	10.40	3	177	0
9:08:00	494	445	365	349	14.20	3.74	9.62	3	177	0
9:12:00	509	460	365	349	14.20	3.81	9.62	3	177	0
9:16:00	509	460	365	349	17.30	3.91	9.43	3	177	0
9:20:00	522	474	365	349	17.30	4.01	9.28	3	177	0
9:24:00	536	474	365	349	17.30	3.59	9.48	3	177	0
9:28:00	536	488	365	349	17.30	3.54	9.72	3	177	0
9:32:00	536	488	365	349	17.30	3.52	9.72	3	177	0
9:36:00	549	501	365	349	17.30	3.47	9.72	3	177	0
9:40:00	549	501	365	349	17.30	3.62	9.67	3	177	0
9:44:00	562	515	365	349	17.30	3.79	9.67	3	177	0
9:48:00	581	537	365	349	39.30	4.54	9.28	3	177	0
9:52:00	612	574	365	349	46.20	5.18	8.89	3	177	0
9:56:00	612	589	365	349	48.80	5.96	8.50	3	177	0
10:00:00	635	598	365	370	50.00	6.15	8.26	0	203	0

D082910.XLS

8/29/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.15	0.83	11.56	0.00	0.38	60.10	1497	809	1037	1244
10:04:00	0.15	0.88	10.97	0.00	0.38	60.10	1499	809	1019	1244
10:08:00	0.15	0.91	11.70	0.00	0.39	60.10	1567	843	1091	1244
10:12:00	0.12	0.92	11.54	0.00	0.37	60.10	1511	843	1034	1271
10:16:00	0.12	0.93	11.75	0.00	0.39	60.10	1552	843	1099	1271
10:20:00	0.12	1.00	11.75	0.00	0.39	62.90	1588	843	1099	1271
10:24:00	0.12	1.08	11.75	0.00	0.40	62.90	1588	872	1099	1297
10:28:00	0.44	1.09	11.68	0.00	0.38	62.90	1607	872	1128	1297
10:32:00	1.10	1.08	11.73	0.00	0.38	65.70	1623	872	1141	1297
10:36:00	1.10	1.06	11.73	0.00	0.40	65.70	1597	899	1130	1297
10:40:00	1.20	1.05	11.82	0.00	0.40	65.70	1594	904	1131	1323
10:44:00	1.20	1.04	11.65	0.00	0.39	65.70	1595	910	1110	1323
10:48:00	1.02	1.02	11.51	0.00	0.39	65.70	1562	879	1049	1323
10:52:00	1.06	1.00	11.19	0.00	0.39	65.70	1554	913	1025	1323
10:56:00	1.06	0.99	11.36	0.00	0.40	65.70	1551	913	1018	1349
11:00:00	1.06	0.97	11.46	0.00	0.40	65.70	1559	913	1035	1349
11:04:00	1.06	0.96	11.68	0.00	0.39	65.70	1602	913	1102	1349
11:08:00	1.06	0.94	11.67	0.00	0.38	65.70	1595	908	1090	1349
11:12:00	1.06	0.91	11.38	0.00	0.39	65.70	1567	946	1038	1349
11:16:00	1.06	0.84	11.30	0.00	0.40	65.70	1571	946	1026	1375
11:20:00	1.06	0.84	11.75	0.00	0.39	65.70	1643	946	1113	1375
11:24:00	1.06	0.85	11.75	0.00	0.40	65.70	1617	946	1084	1375
11:28:00	1.05	0.86	11.54	0.00	0.37	65.70	1617	946	1113	1375
11:32:00	1.05	0.88	11.70	0.00	0.40	65.70	1685	975	1183	1375
11:36:00	1.05	0.89	11.82	0.00	0.40	65.70	1651	946	1168	1404
11:40:00	1.05	0.89	11.82	0.00	0.39	65.70	1691	987	1179	1404
11:44:00	1.05	0.92	11.72	0.00	0.39	65.70	1705	984	1213	1404
11:48:00	1.05	0.96	11.74	0.00	0.40	65.70	1671	954	1220	1429
11:52:00	1.05	0.99	11.80	0.00	0.40	65.70	1703	974	1241	1429
11:56:00	1.05	1.01	11.60	0.00	0.39	65.70	1692	1000	1185	1429
12:00:00	1.04	1.06	11.46	0.00	0.38	65.90	1662	976	1123	1443

D082910.XLS

8/29/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	635	598	365	370	50.00	6.15	8.26	0	203	0
10:04:00	635	598	365	370	50.00	6.13	8.26	0	203	0
10:08:00	635	611	365	370	50.00	5.86	8.55	0	203	0
10:12:00	648	611	365	370	50.00	6.06	8.30	0	203	0
10:16:00	648	626	365	370	50.00	6.15	8.30	0	203	0
10:20:00	664	626	365	370	52.60	6.15	8.30	0	203	0
10:24:00	664	640	365	370	52.60	5.81	8.35	0	203	0
10:28:00	677	640	365	370	52.60	6.01	8.21	0	203	0
10:32:00	690	653	365	370	55.30	6.06	8.16	0	203	0
10:36:00	690	653	365	370	55.30	6.06	8.21	0	203	0
10:40:00	690	667	365	370	55.30	6.06	8.21	0	203	0
10:44:00	703	667	365	370	55.30	6.06	8.21	0	203	0
10:48:00	703	680	365	370	55.30	5.81	8.21	0	203	0
10:52:00	703	680	365	370	55.30	5.79	8.21	0	203	0
10:56:00	718	680	365	370	55.30	5.74	8.21	0	203	0
11:00:00	718	680	365	370	55.30	5.71	8.21	0	203	0
11:04:00	718	695	365	370	55.30	5.71	8.21	0	203	0
11:08:00	732	695	365	370	55.30	5.74	8.21	0	203	0
11:12:00	732	695	365	370	55.30	5.76	8.45	0	203	0
11:16:00	732	708	365	370	55.30	5.79	8.45	0	203	0
11:20:00	746	708	365	370	55.30	5.81	8.45	0	203	0
11:24:00	746	708	365	370	55.30	5.84	8.45	0	203	0
11:28:00	746	721	365	370	55.30	6.08	8.45	0	203	0
11:32:00	746	721	365	370	55.30	6.08	8.21	0	203	0
11:36:00	759	721	365	370	55.30	6.08	8.21	0	203	0
11:40:00	759	721	365	370	55.30	6.06	8.21	0	203	0
11:44:00	759	735	365	370	55.30	6.15	8.21	0	203	0
11:48:00	773	735	365	370	55.30	5.81	8.55	0	203	0
11:52:00	773	735	365	370	55.30	5.79	8.55	0	203	0
11:56:00	773	735	365	370	55.30	5.76	8.55	0	203	0
12:00:00	783	751	359	367	55.40	5.74	8.40	0	249	0

D082912.XLS

8/29/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	1.04	1.06	11.46	0.00	0.38	65.90	1662	976	1123	1443
12:04:00	1.04	1.09	11.51	0.00	0.41	65.90	1715	975	1179	1443
12:08:00	1.04	1.08	11.53	0.00	0.40	65.90	1715	1000	1182	1443
12:12:00	1.04	1.07	11.71	0.00	0.39	65.90	1717	1000	1211	1443
12:16:00	1.04	1.06	11.70	0.00	0.39	65.90	1715	993	1232	1469
12:20:00	1.04	1.04	11.82	0.00	0.41	65.90	1723	1019	1284	1469
12:24:00	1.04	1.03	11.79	0.00	0.41	65.90	1753	1019	1305	1469
12:28:00	1.04	1.02	11.65	0.00	0.39	65.90	1726	1019	1231	1469
12:32:00	1.00	1.03	11.63	0.00	0.38	65.90	1722	1019	1242	1469
12:36:00	1.05	1.01	11.80	0.00	0.42	65.90	1757	1051	1290	1496
12:40:00	1.05	0.96	11.74	0.00	0.41	65.90	1784	1056	1285	1496
12:44:00	1.15	0.90	11.49	0.00	0.40	75.20	1903	1098	1461	1549
12:48:00	1.19	0.62	11.79	0.00	0.50	87.80	1800	1069	1421	1465
12:52:00	1.19	0.92	10.90	0.00	0.50	97.00	1702	1069	1370	1388
12:56:00	1.19	0.73	10.79	0.00	0.50	114.60	1702	1069	1370	1360
13:00:00	0.82	0.61	10.75	0.00	0.50	146.80	1702	1040	1338	1333
13:04:00	0.82	0.67	10.74	0.00	0.35	161.10	1669	1015	1306	1276
13:08:00	0.78	0.86	10.05	0.00	0.35	164.30	1460	1015	1189	1276
13:12:00	0.78	0.61	10.69	0.00	0.35	160.90	1514	1015	1206	1243
13:16:00	0.78	0.65	10.78	0.00	0.35	158.00	1444	1015	1206	1243
13:20:00	0.78	0.90	10.37	0.00	0.35	155.30	1445	1015	1153	1243
13:24:00	0.78	0.60	10.53	0.00	0.28	155.30	1303	1015	1038	1214
13:28:00	0.78	0.65	10.83	0.00	0.37	151.20	1383	1015	1112	1214
13:32:00	0.78	0.91	11.01	0.00	0.37	151.20	1477	1015	1194	1214
13:36:00	0.78	0.60	11.03	0.00	0.15	148.30	1459	1015	1150	1214
13:40:00	0.78	0.65	10.76	0.00	0.39	148.30	1494	1015	1167	1214
13:44:00	0.82	0.93	10.58	0.00	0.37	148.30	1476	1015	1190	1214
13:48:00	0.78	0.60	10.94	0.00	0.37	151.50	1490	1015	1190	1214
13:52:00	0.78	0.64	11.05	0.00	0.36	148.90	1452	1015	1137	1214
13:56:00	0.78	0.94	10.42	0.00	0.36	152.00	1491	1015	1168	1214
14:00:00	0.79	0.60	10.20	0.00	0.36	154.20	1450	1015	1129	1193

D082912.XLS

8/29/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	783	751	359	367	55.40	5.74	8.40	0	249	0
12:04:00	783	751	359	367	55.40	5.67	8.40	0	249	0
12:08:00	783	751	359	367	55.40	5.59	8.45	0	249	0
12:12:00	783	751	359	367	55.40	5.37	8.45	0	249	0
12:16:00	783	764	359	367	55.40	5.37	8.45	0	249	0
12:20:00	800	764	359	367	55.40	5.37	8.69	0	249	0
12:24:00	800	764	359	367	55.40	5.37	8.69	0	249	0
12:28:00	800	764	359	367	55.40	5.18	8.69	0	249	0
12:32:00	800	778	359	367	55.40	4.62	8.99	0	249	0
12:36:00	813	778	359	367	55.40	4.57	8.99	0	349	0
12:40:00	813	778	359	367	55.40	4.62	9.09	0	349	0
12:44:00	830	795	359	367	68.90	4.64	9.13	0	349	0
12:48:00	830	810	359	398	80.90	9.87	5.91	0	174	0
12:52:00	843	810	359	398	90.50	10.55	5.52	0	74	0
12:56:00	843	824	359	398	110.20	10.55	5.52	0	74	0
13:00:00	860	838	359	398	143.10	10.26	5.76	0	74	0
13:04:00	860	854	359	398	157.00	9.87	6.01	0	74	0
13:08:00	860	854	359	398	160.10	9.96	6.01	0	74	0
13:12:00	846	839	359	398	157.20	10.28	5.62	0	74	0
13:16:00	846	839	359	398	154.10	10.28	5.62	0	74	0
13:20:00	846	839	359	398	151.30	10.06	5.62	0	74	0
13:24:00	846	839	359	398	148.50	10.16	5.67	0	74	0
13:28:00	846	839	359	398	145.80	9.94	5.91	0	74	0
13:32:00	846	826	359	398	145.80	9.94	5.91	0	74	0
13:36:00	846	826	359	398	145.80	9.69	5.91	0	74	0
13:40:00	846	826	359	398	142.50	9.91	5.91	0	74	0
13:44:00	846	826	359	398	142.50	9.67	5.91	0	74	0
13:48:00	860	826	359	398	147.80	10.28	5.57	0	74	0
13:52:00	860	826	359	398	145.00	9.62	5.81	0	74	0
13:56:00	860	826	359	398	145.00	10.04	5.76	0	74	0
14:00:00	874	829	361	396	149.60	10.30	5.62	0	78	0

D083008.XLS

8/30/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-143	-148	-148	-148
9:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:52:00	0.12	1.16	11.82	0.00	0.00	40.90	1343	791	1050	1389
9:56:00	0.12	1.14	11.82	0.00	0.00	40.90	1343	791	1023	1389
10:00:00	0.14	1.11	11.75	0.00	0.00	52.30	1652	930	1313	1466

D083008.XLS

8/30/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:52:00	619	529	362	367	16.40	4.05	9.18	0	286	13
9:56:00	619	529	362	367	16.40	3.93	9.18	0	286	13
10:00:00	647	549	374	379	44.00	3.83	9.38	0	286	13

D083010.XLS

8/30/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.14	1.11	11.75	0.00	0.00	52.30	1652	930	1313	1466
10:04:00	0.11	1.10	11.75	0.00	0.00	63.70	1358	852	1086	1397
10:08:00	0.11	1.08	11.75	0.00	0.00	63.70	1358	852	1115	1397
10:12:00	0.15	1.06	11.75	0.00	0.00	63.70	1444	852	1175	1427
10:16:00	0.07	1.04	11.75	0.00	0.00	63.70	1473	899	1205	1427
10:20:00	0.13	1.01	11.75	0.00	0.00	63.70	1504	925	1234	1427
10:24:00	0.03	1.03	11.75	0.00	0.00	63.70	1504	925	1183	1452
10:28:00	0.03	1.03	11.75	0.00	0.00	63.70	1423	899	1051	1452
10:32:00	0.03	1.04	11.75	0.00	0.00	63.70	1501	934	1230	1452
10:36:00	0.03	1.05	11.75	0.00	0.00	63.70	1649	934	1120	1480
10:40:00	0.03	1.06	11.75	0.00	0.00	63.70	1731	935	1231	1480
10:44:00	0.03	1.04	11.75	0.00	0.00	63.70	1707	970	1154	1480
10:48:00	0.03	1.04	11.75	0.00	0.00	63.70	1748	923	1222	1480
10:52:00	0.03	1.05	11.75	0.00	0.00	63.70	1789	955	1296	1480
10:56:00	0.03	1.06	11.75	0.00	0.00	63.70	1705	919	1135	1480
11:00:00	0.03	1.09	11.75	0.00	0.00	63.70	1809	962	1286	1480
11:04:00	0.03	1.11	11.75	0.00	0.00	63.70	1765	943	1210	1510
11:08:00	0.03	1.24	11.75	0.00	0.00	63.70	1809	984	1330	1510
11:12:00	0.03	1.23	11.75	0.00	0.00	63.70	1770	972	1230	1510
11:16:00	0.03	1.20	11.75	0.00	0.00	63.70	1845	1012	1310	1510
11:20:00	0.00	1.14	11.75	0.00	0.00	63.70	1826	1007	1324	1510
11:24:00	2.20	1.10	11.75	0.00	0.95	63.70	1826	1035	1324	1536
11:28:00	2.24	1.07	11.75	0.00	0.95	63.70	1826	1035	1337	1536
11:32:00	2.17	0.57	11.75	0.00	0.95	84.80	1814	1069	1420	1486
11:36:00	2.20	0.60	11.75	0.00	1.06	98.50	1716	1042	1333	1394
11:40:00	2.24	0.64	11.75	0.00	0.99	117.80	1682	1015	1333	1360
11:44:00	2.19	0.73	11.53	0.00	1.13	136.60	1645	1015	1297	1279
11:48:00	1.64	0.59	11.09	0.00	1.17	149.90	1645	981	1267	1248
11:52:00	1.64	0.62	10.07	0.00	1.18	154.60	1581	981	1211	1221
11:56:00	1.04	0.76	11.07	0.00	1.11	157.80	1558	981	1181	1188
12:00:00	1.11	0.00	5.48	0.00	1.24	115.20	853	569	749	1076

D083010.XLS

8/30/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	647	549	374	379	44.00	3.83	9.38	0	286	13
10:04:00	670	584	374	379	53.50	3.83	9.48	0	286	13
10:08:00	670	597	374	379	50.40	3.79	9.52	0	286	13
10:12:00	684	597	374	379	50.40	3.83	9.57	0	286	13
10:16:00	684	611	374	379	50.40	3.86	9.57	0	286	13
10:20:00	701	611	374	379	50.40	3.88	9.57	0	286	13
10:24:00	701	625	374	379	50.40	3.96	9.57	0	286	13
10:28:00	701	625	374	379	50.40	3.98	9.52	0	286	13
10:32:00	715	625	374	379	50.40	3.98	9.52	0	286	13
10:36:00	715	639	374	379	50.40	3.98	9.48	0	286	13
10:40:00	729	639	374	379	50.40	3.98	9.48	0	286	13
10:44:00	729	639	374	379	50.40	4.32	9.23	0	286	13
10:48:00	729	653	374	379	50.40	4.81	8.99	0	286	13
10:52:00	742	653	374	379	50.40	4.84	8.99	0	286	13
10:56:00	742	653	374	379	50.40	4.93	8.99	0	286	13
11:00:00	755	666	374	379	50.40	4.96	8.99	0	286	13
11:04:00	755	666	374	379	50.40	4.98	8.99	0	286	13
11:08:00	755	666	374	379	50.40	5.03	8.99	0	286	13
11:12:00	755	680	374	379	50.40	4.98	8.99	0	286	13
11:16:00	769	680	374	379	50.40	4.91	8.79	0	286	13
11:20:00	769	680	374	379	50.40	4.59	8.84	0	286	13
11:24:00	782	680	374	379	50.40	4.59	8.79	0	286	13
11:28:00	782	696	374	379	50.40	5.28	8.55	0	3	13
11:32:00	800	711	374	409	78.00	8.96	6.16	0	139	13
11:36:00	816	726	374	409	91.00	11.31	4.93	0	142	13
11:40:00	816	742	374	409	113.10	11.31	4.93	0	36	13
11:44:00	816	756	374	435	128.90	10.84	5.18	0	36	13
11:48:00	830	770	374	435	145.30	10.57	5.47	0	36	13
11:52:00	830	770	374	435	150.00	10.30	5.47	0	36	13
11:56:00	843	770	374	435	153.20	10.30	5.72	0	36	13
12:00:00	795	752	374	420	108.70	14.31	2.79	25	6	13

D083012.XLS

8/30/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	1.11	0.00	5.48	0.00	1.24	115.20	853	569	749	1076
12:04:00	1.11	0.00	2.76	0.00	1.24	25.90	833	440	565	1048
12:08:00	1.11	0.00	2.76	0.00	0.54	18.00	1076	634	743	1079
12:12:00	1.11	0.00	2.76	0.00	0.46	18.00	1192	760	956	1143
12:16:00	1.11	0.00	5.20	0.00	0.33	18.00	1231	839	1054	1073
12:20:00	1.07	0.19	2.91	0.00	0.34	18.00	1237	792	1022	1073
12:24:00	1.11	0.20	2.91	0.00	0.40	18.00	1237	792	1022	1073
12:28:00	1.11	0.56	4.58	0.00	0.00	18.00	1267	792	1062	1073
12:32:00	1.11	0.49	7.10	0.00	0.31	20.80	1331	824	1062	1100
12:36:00	1.07	0.46	7.40	0.00	0.39	23.40	1331	824	1062	1129
12:40:00	1.07	0.77	8.99	0.00	0.00	26.10	1395	850	1116	1156
12:44:00	1.07	0.60	10.48	0.00	0.33	29.00	1395	850	1116	1182
12:48:00	1.07	0.66	10.55	0.00	0.33	29.00	1395	850	1116	1207
12:52:00	1.07	0.59	10.82	0.00	0.00	34.70	1475	892	1179	1241
12:56:00	1.11	0.73	10.60	0.00	0.36	41.90	1506	892	1179	1241
13:00:00	1.07	0.89	11.63	0.00	0.00	48.50	1576	921	1209	1301
13:04:00	1.07	1.14	11.81	0.00	0.36	51.60	1618	921	1237	1335
13:08:00	1.07	1.16	11.81	0.00	0.00	54.20	1644	960	1264	1393
13:12:00	1.11	1.14	11.81	0.00	0.34	56.90	1679	987	1291	1429
13:16:00	1.07	1.10	11.81	0.00	0.00	56.90	1722	987	1330	1462
13:20:00	1.11	1.09	11.81	0.00	0.34	59.50	1729	987	1337	1489
13:24:00	1.11	1.17	11.81	0.00	0.00	59.50	1729	987	1304	1524
13:28:00	1.06	1.25	11.81	0.00	0.35	59.50	1754	1021	1360	1552
13:32:00	1.08	1.25	11.81	0.00	0.00	59.50	1780	1021	1391	1581
13:36:00	1.08	1.23	11.81	0.00	0.33	59.50	1780	1051	1417	1581
13:40:00	1.08	0.61	11.82	0.00	0.64	89.80	1819	1074	1478	1504
13:44:00	1.08	0.65	10.77	0.00	1.13	129.40	1750	1034	1443	1445
13:48:00	1.08	0.79	10.99	0.00	1.10	147.90	1685	1034	1386	1357
13:52:00	0.57	0.60	10.54	0.00	1.20	155.50	1653	1034	1318	1288
13:56:00	0.52	0.76	10.09	0.00	1.16	162.50	1576	988	1290	1261
14:00:00	0.34	0.58	10.30	1.42	1.20	169.60	1586	1009	1255	1223

D083012.XLS

8/30/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	795	752	374	420	108.70	14.31	2.79	25	6	13
12:04:00	722	682	374	385	16.90	12.87	2.01	110	6	13
12:08:00	708	648	374	385	16.90	17.58	1.03	137	6	13
12:12:00	693	634	374	385	14.10	7.47	7.08	1000	6	13
12:16:00	680	612	374	385	14.10	18.31	0.34	76	6	13
12:20:00	680	599	374	385	14.10	9.87	6.06	161	6	13
12:24:00	649	599	374	385	14.10	10.65	2.40	7	6	13
12:28:00	649	585	374	385	14.10	7.77	7.08	7	6	13
12:32:00	649	585	374	385	14.10	13.01	0.69	7	6	13
12:36:00	649	585	374	385	14.10	6.57	7.77	7	6	13
12:40:00	649	585	374	385	14.10	7.35	7.33	7	6	13
12:44:00	664	585	374	385	14.10	8.50	7.03	7	6	13
12:48:00	664	585	374	385	14.10	8.89	6.60	7	6	13
12:52:00	678	585	374	385	26.30	8.33	6.94	7	6	13
12:56:00	693	599	374	385	32.00	5.62	8.60	7	114	13
13:00:00	708	615	374	385	34.90	6.15	8.21	7	114	13
13:04:00	721	629	374	385	38.30	4.84	8.94	7	114	13
13:08:00	737	644	374	385	40.90	4.64	8.99	7	114	13
13:12:00	752	658	374	385	43.70	4.13	9.28	7	114	13
13:16:00	752	674	374	385	43.70	3.62	9.62	7	215	13
13:20:00	767	687	374	385	43.70	3.10	10.16	7	215	13
13:24:00	781	702	374	385	46.30	3.08	10.26	7	215	13
13:28:00	797	702	374	385	46.30	3.40	9.92	7	215	13
13:32:00	797	715	374	411	46.30	3.42	9.82	7	215	13
13:36:00	813	715	374	411	46.30	2.96	9.92	7	215	13
13:40:00	831	747	374	436	86.00	10.35	5.76	7	68	13
13:44:00	861	777	374	464	125.40	10.96	5.33	7	68	13
13:48:00	861	792	374	464	143.70	10.67	5.33	7	68	13
13:52:00	818	792	374	464	151.30	10.67	5.33	7	68	13
13:56:00	818	806	374	464	155.10	9.60	6.45	7	68	13
14:00:00	812	811	367	476	164.70	9.94	6.16	0	63	13

D083014.XLS

8/30/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.34	0.58	10.30	1.42	1.20	169.60	1586	1009	1255	1223
14:04:00	0.54	0.62	10.30	1.42	1.39	172.50	1558	1009	1230	1223
14:08:00	0.47	0.89	10.30	1.42	1.36	172.50	1532	1009	1230	1191
14:12:00	2.51	0.00	10.30	1.42	1.36	172.50	1369	978	1179	1191
14:16:00	1.86	0.00	11.20	1.42	1.36	143.90	982	762	897	1057
14:20:00	2.10	0.00	9.93	1.42	1.37	140.50	1085	829	1010	987
14:24:00	1.98	0.00	5.57	1.42	0.89	77.70	869	542	688	941
14:28:00	1.86	0.00	2.83	0.79	0.00	18.50	953	544	661	937
14:32:00	2.01	0.00	1.96	0.00	0.32	18.50	1100	706	877	971
14:36:00	2.10	0.00	0.01	0.00	0.00	15.70	1122	718	880	971
14:40:00	2.14	0.00	0.01	0.00	0.00	15.70	1151	749	880	971
14:44:00	1.02	0.00	0.01	0.00	0.00	15.70	1151	775	906	944
14:48:00	1.18	0.00	0.01	0.00	0.00	15.70	1151	775	906	944
14:52:00	1.29	0.00	0.01	0.00	0.00	15.70	1151	775	906	944
14:56:00	1.62	0.00	0.01	0.00	0.00	15.70	1151	775	906	910
15:00:00	1.70	0.00	0.01	0.00	0.00	15.70	1151	775	906	878
15:04:00	1.80	0.00	0.01	0.00	0.00	15.70	1151	775	906	878
15:08:00	3.50	0.00	0.01	0.00	0.00	15.70	1151	775	906	847
15:12:00	0.00	0.00	0.01	0.00	0.00	15.70	1151	775	906	820
15:16:00	0.00	0.00	0.01	0.00	0.00	15.70	1151	775	906	820
15:20:00	0.00	0.00	0.01	0.00	0.00	15.70	1125	775	906	820
15:24:00	0.00	0.00	0.01	0.00	0.00	15.70	1125	775	906	820
15:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D083014.XLS

8/30/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	812	811	367	476	164.70	9.94	6.16	0	63	13
14:04:00	812	811	367	476	167.90	10.67	5.57	0	63	13
14:08:00	812	811	367	476	167.90	10.67	5.57	0	63	13
14:12:00	812	811	367	476	167.90	10.60	5.76	0	63	13
14:16:00	747	779	367	476	137.70	16.24	1.86	293	63	13
14:20:00	731	763	367	476	136.10	17.95	0.69	127	63	13
14:24:00	674	726	367	445	68.90	16.38	0.93	235	63	13
14:28:00	630	673	367	410	15.00	15.68	1.17	169	63	13
14:32:00	630	657	367	410	15.00	17.95	0.49	76	63	13
14:36:00	630	642	367	410	15.00	17.34	1.13	103	63	13
14:40:00	630	642	336	410	15.00	17.34	1.13	59	63	13
14:44:00	630	628	309	410	15.00	17.34	1.13	44	63	13
14:48:00	630	628	282	410	15.00	17.34	1.13	32	63	13
14:52:00	630	628	255	410	15.00	17.34	1.13	20	63	13
14:56:00	630	615	255	410	15.00	17.34	1.13	20	63	13
15:00:00	630	615	229	410	15.00	17.34	1.13	20	63	13
15:04:00	617	615	229	410	15.00	17.34	1.13	20	63	13
15:08:00	617	601	229	410	15.00	17.12	1.13	20	63	13
15:12:00	617	601	229	410	15.00	17.12	1.13	20	63	13
15:16:00	617	601	229	410	15.00	10.26	1.13	0	63	13
15:20:00	617	601	203	410	15.00	10.26	1.13	0	63	13
15:24:00	617	587	203	410	15.00	10.26	1.13	0	63	13
15:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D091208.XLS

9/12/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.00	0.60	8.00	0.00	0.00	22.90	140	166	243	357
8:36:00	0.00	0.51	7.82	0.00	0.63	22.90	140	166	280	422
8:40:00	0.00	0.62	7.82	0.00	0.56	22.90	140	195	322	461
8:44:00	0.00	0.53	7.82	0.00	0.58	22.90	166	195	353	524
8:48:00	0.00	0.48	7.82	0.00	0.62	22.90	166	222	379	552
8:52:00	0.00	0.54	7.82	0.00	0.58	22.90	166	222	404	577
8:56:00	0.00	0.49	7.82	0.00	0.56	22.90	166	222	436	607
9:00:00	0.00	0.59	7.82	0.00	0.61	22.90	192	250	462	607
9:04:00	0.00	0.51	7.82	0.00	0.56	22.90	220	250	462	636
9:08:00	0.00	0.63	7.66	0.00	0.55	22.90	309	250	492	663
9:12:00	0.00	0.51	7.66	0.00	0.59	22.90	347	278	492	692
9:16:00	0.00	0.65	7.66	0.00	0.56	22.90	832	278	518	692
9:20:00	0.00	0.53	7.66	0.00	0.57	22.90	858	278	544	721
9:24:00	0.00	0.63	7.66	0.00	0.60	25.50	937	305	580	758
9:28:00	0.00	0.52	7.66	0.00	0.55	28.10	937	305	580	758
9:32:00	0.00	0.58	7.66	0.00	0.58	28.10	937	333	580	758
9:36:00	0.00	0.56	7.66	0.00	0.57	28.10	975	333	609	758
9:40:00	0.00	0.62	7.66	0.00	0.58	28.10	1001	333	638	793
9:44:00	0.00	0.85	7.66	0.00	0.55	28.10	1027	333	638	793
9:48:00	0.00	0.59	7.66	0.00	0.55	28.10	1061	359	666	824
9:52:00	0.00	0.64	7.66	0.00	0.55	30.80	1061	359	666	849
9:56:00	0.00	0.76	7.66	0.00	0.55	30.80	1091	359	693	849
10:00:00	0.00	0.60	7.58	0.00	0.56	30.80	1111	381	714	884

D091208.XLS

9/12/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	153	123	64	67	14.50	7.74	7.03	10	73	13
8:36:00	184	156	64	67	14.50	7.23	7.13	10	73	13
8:40:00	199	172	64	67	14.50	7.45	7.13	10	73	13
8:44:00	215	172	64	67	14.50	7.52	7.38	10	73	13
8:48:00	230	186	64	67	14.50	7.20	7.43	10	73	13
8:52:00	230	186	64	67	14.50	7.28	7.43	10	73	13
8:56:00	245	201	64	67	14.50	7.01	7.43	10	73	13
9:00:00	258	201	64	67	14.50	7.30	7.57	10	73	13
9:04:00	258	215	64	67	14.50	6.52	7.57	10	73	13
9:08:00	271	215	64	67	14.50	7.13	7.47	10	73	13
9:12:00	271	229	64	67	14.50	6.50	7.82	10	73	13
9:16:00	285	229	64	67	14.50	7.13	7.47	10	73	13
9:20:00	285	229	64	67	14.50	6.35	7.91	10	73	13
9:24:00	285	243	64	67	19.50	6.79	7.72	10	73	13
9:28:00	301	243	64	67	19.50	6.15	8.06	10	73	13
9:32:00	314	257	64	67	19.50	6.69	8.06	10	73	13
9:36:00	314	257	64	67	19.50	6.35	8.06	10	73	13
9:40:00	314	271	64	67	22.20	5.08	8.84	10	73	13
9:44:00	328	271	64	93	22.20	4.86	8.84	10	73	13
9:48:00	328	271	64	93	22.20	4.37	9.09	10	73	13
9:52:00	341	285	64	93	22.20	4.98	8.84	10	73	13
9:56:00	341	285	64	93	22.20	4.52	8.84	10	73	13
10:00:00	350	297	70	99	22.30	4.45	9.13	3	167	13

D091210.XLS

9/12/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.60	7.58	0.00	0.56	30.80	1111	381	714	884
10:04:00	0.00	0.70	7.58	0.00	0.54	30.80	1111	381	714	884
10:08:00	0.00	0.59	7.58	0.00	0.56	30.80	1208	414	783	925
10:12:00	0.00	0.61	7.34	0.00	0.54	38.80	1208	414	783	897
10:16:00	0.00	0.88	7.34	0.00	0.54	51.00	1267	452	782	870
10:20:00	0.00	0.58	7.17	0.00	0.57	53.90	1233	452	782	836
10:24:00	0.00	0.63	7.25	0.00	0.54	53.90	1202	477	782	836
10:28:00	0.00	0.85	7.03	0.00	0.56	56.60	1202	477	782	836
10:32:00	0.00	0.59	7.22	0.00	0.54	56.60	1202	477	782	836
10:36:00	0.00	0.64	7.22	0.00	0.57	56.60	1202	507	782	836
10:40:00	0.00	0.77	7.22	0.00	0.54	56.60	1202	507	782	836
10:44:00	0.00	0.60	7.02	0.00	0.54	56.60	1202	507	782	836
10:48:00	0.00	0.68	7.21	0.00	0.56	56.60	1244	507	782	864
10:52:00	0.00	0.64	7.21	0.00	0.54	56.60	1244	507	782	864
10:56:00	0.00	0.61	7.21	0.00	0.56	56.60	1244	507	782	864
11:00:00	0.00	0.86	7.21	0.00	0.54	56.60	1244	533	782	864
11:04:00	0.00	0.58	7.03	0.00	0.57	56.60	1244	533	808	893
11:08:00	0.00	0.62	6.87	0.73	0.56	56.60	1306	533	808	893
11:12:00	0.00	0.85	7.07	0.73	0.54	56.60	1306	533	808	893
11:16:00	0.00	0.59	7.07	0.73	0.59	56.60	1251	533	808	893
11:20:00	0.00	0.63	7.07	0.96	0.57	59.20	1299	566	835	921
11:24:00	0.00	1.02	6.91	1.21	0.57	62.10	1393	594	885	967
11:28:00	0.00	0.57	7.99	1.41	0.61	68.90	1250	594	877	971
11:32:00	0.00	0.61	8.08	1.30	0.59	68.90	1050	594	835	935
11:36:00	0.00	0.88	8.25	1.30	0.61	68.90	1077	594	835	935
11:40:00	0.00	0.60	8.49	1.30	0.62	68.90	1038	594	835	935
11:44:00	0.00	0.76	8.69	1.30	0.59	68.90	1088	594	835	935
11:48:00	0.00	0.79	9.72	1.43	0.61	68.90	1210	628	926	1024
11:52:00	0.00	0.87	8.39	1.43	0.60	68.90	1158	628	926	1057
11:56:00	0.00	1.01	8.38	1.43	0.59	71.50	1194	628	955	1057
12:00:00	0.00	0.97	8.31	1.51	0.61	73.40	1141	655	940	1097

D091210.XLS

9/12/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	350	297	70	99	22.30	4.45	9.13	3	167	13
10:04:00	350	297	70	99	22.30	5.01	8.79	3	167	13
10:08:00	350	297	70	99	27.70	4.42	9.04	3	167	13
10:12:00	364	312	70	99	31.70	4.71	9.09	3	167	13
10:16:00	398	328	70	99	46.50	4.54	8.89	3	167	13
10:20:00	412	358	70	99	49.20	3.69	9.57	3	167	13
10:24:00	426	358	70	99	49.20	4.15	9.33	3	167	13
10:28:00	426	373	70	99	51.90	3.79	9.33	3	167	13
10:32:00	441	386	70	125	51.90	3.71	9.57	3	167	13
10:36:00	441	386	70	125	51.90	4.18	9.28	3	167	13
10:40:00	441	386	70	125	51.90	3.71	9.48	3	167	13
10:44:00	457	400	70	125	51.90	3.83	9.52	3	167	13
10:48:00	457	400	70	125	51.90	4.13	9.18	3	167	13
10:52:00	457	400	70	125	51.90	3.64	9.33	3	167	13
10:56:00	470	414	70	125	51.90	4.01	9.48	3	167	13
11:00:00	470	414	70	125	51.90	3.96	9.23	3	167	13
11:04:00	470	414	70	125	51.90	3.62	9.57	3	167	13
11:08:00	484	427	70	125	51.90	4.10	9.33	3	167	13
11:12:00	484	427	70	125	51.90	4.54	8.89	3	167	13
11:16:00	484	427	70	125	51.90	4.13	9.28	3	283	13
11:20:00	484	427	70	151	54.70	4.98	8.69	3	283	13
11:24:00	497	441	70	151	57.70	5.15	8.99	3	283	13
11:28:00	510	454	70	151	61.40	6.23	7.86	530	105	13
11:32:00	524	454	70	151	61.40	6.25	8.11	32	266	13
11:36:00	524	467	70	151	61.40	6.40	7.86	17	369	13
11:40:00	524	467	70	151	61.40	6.15	8.11	17	369	13
11:44:00	524	467	70	151	61.40	5.40	9.04	5	257	13
11:48:00	538	480	70	151	64.00	2.86	10.16	5	122	13
11:52:00	553	494	70	151	64.00	2.91	10.06	5	122	13
11:56:00	553	494	70	151	64.00	2.74	10.11	5	122	13
12:00:00	572	513	84	178	67.60	2.98	9.92	3	74	13

D091212.XLS

9/12/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.97	8.31	1.51	0.61	73.40	1141	655	940	1097
12:04:00	0.00	0.92	8.24	1.51	0.71	73.40	1077	655	941	1097
12:08:00	0.00	0.74	8.21	1.51	0.69	73.40	1047	655	941	1128
12:12:00	1.68	0.74	7.97	1.51	0.68	73.40	1000	655	913	1128
12:16:00	1.68	0.77	8.04	1.51	0.79	73.40	1067	682	930	1128
12:20:00	1.68	0.81	7.84	1.51	0.79	73.40	1086	682	930	1158
12:24:00	1.68	0.96	8.08	1.51	0.78	73.40	1105	682	979	1158
12:28:00	1.68	0.99	8.41	1.51	0.79	73.40	1024	682	937	1158
12:32:00	1.68	0.96	7.97	1.51	0.80	73.40	1020	682	937	1189
12:36:00	1.68	0.89	8.08	1.51	0.83	73.40	1019	682	937	1189
12:40:00	1.68	0.74	8.24	1.51	0.88	73.40	1002	699	904	1189
12:44:00	1.68	0.76	7.82	1.51	0.90	73.40	1027	699	917	1217
12:48:00	1.68	0.79	8.45	1.75	0.87	73.40	1302	749	1071	1217
12:52:00	1.68	0.00	2.25	0.00	0.00	21.20	694	287	349	993
12:56:00	1.68	0.00	1.57	0.00	0.00	18.20	807	438	590	1020
13:00:00	1.68	0.00	1.57	0.00	0.00	18.20	894	484	659	1020
13:04:00	1.68	0.46	5.53	0.00	0.00	18.20	1033	583	932	1034
13:08:00	1.83	1.02	9.39	1.53	0.80	29.70	1192	655	978	1073
13:12:00	1.83	0.75	9.54	1.53	0.82	32.70	1192	655	966	1153
13:16:00	1.83	0.79	9.54	2.05	0.95	36.00	1265	692	980	1179
13:20:00	1.14	0.85	8.97	1.94	0.93	36.00	1231	692	931	1179
13:24:00	1.14	1.09	8.26	1.31	0.89	33.30	1067	531	737	1207
13:28:00	1.14	0.68	8.26	0.01	0.84	27.70	1017	445	602	1207
13:32:00	1.14	0.48	9.17	1.82	0.95	34.00	1224	700	961	1134
13:36:00	1.38	0.96	8.57	1.83	0.95	36.60	1224	700	987	1134
13:40:00	1.59	0.00	2.14	0.00	0.00	21.20	924	390	577	995
13:44:00	1.60	0.50	7.78	0.00	0.60	21.70	1122	628	1008	1096
13:48:00	1.36	0.89	8.86	1.71	0.57	30.50	1208	668	1015	1096
13:52:00	1.36	0.61	8.50	1.71	0.48	34.20	1171	668	1001	1096
13:56:00	0.94	0.98	8.50	1.71	0.39	34.20	1107	559	801	1067
14:00:00	1.58	0.58	8.55	1.67	0.33	33.00	1116	640	928	1095

D091212.XLS

9/12/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	572	513	84	178	67.60	2.98	9.92	3	74	13
12:04:00	572	513	84	178	67.60	2.69	10.16	3	74	13
12:08:00	586	513	84	178	67.60	2.93	9.87	3	74	13
12:12:00	586	527	84	178	67.60	2.93	10.16	3	74	13
12:16:00	586	527	84	178	67.60	3.30	9.82	3	74	13
12:20:00	600	540	84	178	67.60	3.49	9.82	3	74	13
12:24:00	600	540	84	178	67.60	3.49	9.67	3	74	13
12:28:00	600	540	84	178	67.60	3.20	9.72	3	74	13
12:32:00	614	553	84	178	67.60	3.20	9.96	3	74	13
12:36:00	614	553	84	178	67.60	3.00	9.96	3	74	13
12:40:00	614	553	84	204	67.60	3.08	10.06	3	74	13
12:44:00	628	566	84	204	67.60	3.15	10.01	3	74	13
12:48:00	628	566	84	204	67.60	3.57	9.72	3	74	13
12:52:00	559	525	84	204	15.40	11.06	2.35	142	74	13
12:56:00	539	487	84	204	15.40	16.46	1.22	64	74	13
13:00:00	523	470	84	204	15.40	14.28	2.35	1000	74	13
13:04:00	510	455	84	204	15.40	7.20	7.77	1000	74	13
13:08:00	526	455	84	204	15.40	6.47	8.21	29	74	13
13:12:00	540	471	84	204	15.40	4.74	8.89	15	74	13
13:16:00	554	486	84	204	15.40	7.08	7.77	3	74	13
13:20:00	567	486	84	204	15.40	7.52	7.47	3	74	13
13:24:00	567	499	84	204	15.40	4.76	8.74	15	74	13
13:28:00	554	499	84	204	15.40	4.62	8.65	27	183	13
13:32:00	554	499	84	204	15.40	12.14	4.30	10	54	13
13:36:00	567	499	84	204	15.40	9.52	6.20	10	54	13
13:40:00	544	499	84	204	15.40	16.07	1.76	152	54	13
13:44:00	530	467	84	204	15.40	3.08	9.23	1000	54	13
13:48:00	545	467	84	204	15.40	9.33	6.06	37	54	13
13:52:00	545	480	84	204	15.40	9.04	6.50	25	54	13
13:56:00	545	480	84	204	15.40	9.50	6.11	12	54	13
14:00:00	553	490	103	220	15.60	8.94	6.40	15	100	13

D091214.XLS

9/12/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	1.58	0.58	8.55	1.67	0.33	33.00	1116	640	928	1095
14:04:00	2.10	0.63	8.85	1.67	0.34	35.60	1167	692	949	1095
14:08:00	0.00	0.93	8.59	1.80	0.36	59.10	1315	731	1097	1181
14:12:00	0.00	0.59	7.79	1.66	0.36	70.60	1282	731	1038	1072
14:16:00	0.06	0.00	2.15	0.75	0.00	49.20	983	447	733	953
14:20:00	1.83	0.00	2.15	0.75	0.00	17.60	893	444	681	945
14:24:00	1.76	0.00	2.15	0.75	0.00	17.60	958	504	759	945
14:28:00	1.70	0.00	0.01	0.00	0.00	17.60	967	496	731	898
14:32:00	1.67	0.00	0.01	0.00	0.00	17.60	1002	496	731	871
14:36:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	838
14:40:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	805
14:44:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	769
14:48:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	731
14:52:00	1.79	0.00	0.01	0.00	0.00	17.60	1002	496	731	698
14:56:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	668
15:00:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	642
15:04:00	1.75	0.00	0.01	0.00	0.00	17.60	1002	496	731	612
15:08:00	3.05	0.00	0.01	0.00	0.00	17.60	1002	496	731	586
15:12:00	2.62	0.00	0.01	0.00	0.00	17.60	1002	496	731	586
15:16:00	2.62	0.00	0.01	0.00	0.00	17.60	1002	496	706	553
15:20:00	0.00	0.00	0.01	0.00	0.00	17.60	1002	496	706	553
15:24:00	0.00	0.00	0.01	0.00	0.00	17.60	1002	496	706	528
15:28:00	0.00	0.00	0.01	0.00	0.00	17.60	1002	496	706	528
15:32:00	0.00	0.00	0.01	0.00	0.00	17.60	1002	496	706	500
15:36:00	0.00	0.00	0.01	0.00	0.00	17.60	1002	496	706	500
15:40:00	0.00	0.00	0.01	0.00	0.00	17.60	976	496	706	473
15:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D091214.XLS

9/12/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	553	490	103	220	15.60	8.94	6.40	15	100	13
14:04:00	553	490	103	220	15.60	9.13	6.40	49	100	13
14:08:00	575	506	103	220	53.90	4.98	9.43	137	100	13
14:12:00	594	543	103	246	64.90	7.52	7.67	47	203	13
14:16:00	577	543	103	246	45.10	10.94	4.54	108	64	13
14:20:00	539	494	103	246	15.10	15.24	1.61	481	64	13
14:24:00	526	478	103	246	15.10	17.51	0.88	364	64	13
14:28:00	510	463	103	246	15.10	16.85	1.37	388	64	13
14:32:00	496	448	103	246	15.10	16.85	1.37	479	64	13
14:36:00	496	448	103	246	15.10	16.85	1.37	506	64	13
14:40:00	481	434	103	246	15.10	16.85	1.37	506	64	13
14:44:00	481	434	103	246	15.10	16.85	1.37	491	64	13
14:48:00	468	434	103	220	15.10	16.85	1.37	464	64	13
14:52:00	468	421	103	220	15.10	16.63	1.37	410	64	13
14:56:00	468	421	103	220	15.10	16.63	1.37	354	64	13
15:00:00	468	421	103	220	15.10	3.27	1.37	318	64	13
15:04:00	455	421	103	220	15.10	3.27	1.37	318	64	13
15:08:00	455	408	103	220	15.10	3.27	1.37	318	64	13
15:12:00	455	408	103	220	15.10	3.27	1.37	318	64	13
15:16:00	455	408	103	220	15.10	3.27	1.37	318	64	13
15:20:00	442	408	103	220	15.10	3.27	1.37	318	64	13
15:24:00	442	408	103	220	15.10	3.27	1.37	318	64	13
15:28:00	442	408	103	220	15.10	3.27	1.37	318	64	13
15:32:00	442	394	103	220	15.10	3.27	1.37	318	64	13
15:36:00	442	394	103	220	15.10	3.27	1.37	318	64	13
15:40:00	442	394	103	220	15.10	3.27	1.37	318	64	13
15:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D091308.XLS

9/13/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:56:00	0.00	0.42	6.33	1.05	0.53	21.00	332	284	413	436
10:00:00	0.00	0.64	8.20	1.42	0.52	27.80	440	349	537	591

D091308.XLS

9/13/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:56:00	238	214	87	125	14.00	9.18	6.30	115	32	0
10:00:00	286	240	88	127	15.00	7.84	7.08	12	81	0

9/13/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.64	8.20	1.42	0.52	27.80	440	349	537	591
10:04:00	0.00	0.61	8.40	1.57	0.52	27.80	471	349	595	654
10:08:00	0.00	0.68	7.13	1.46	0.51	27.80	471	349	626	712
10:12:00	0.00	0.59	7.39	1.46	0.49	27.80	499	377	626	740
10:16:00	0.00	0.66	7.22	1.46	0.49	27.80	533	377	665	783
10:20:00	0.00	0.58	7.39	1.46	0.49	27.80	565	404	665	810
10:24:00	0.00	0.61	7.39	1.46	0.49	27.80	596	404	665	842
10:28:00	0.00	0.79	7.38	1.46	0.49	27.80	627	404	700	842
10:32:00	0.00	0.58	7.63	1.46	0.49	27.80	627	431	734	872
10:36:00	0.00	0.62	7.42	1.46	0.51	27.80	659	431	707	897
10:40:00	0.00	0.80	7.42	1.46	0.51	27.80	689	431	739	897
10:44:00	0.00	0.58	7.63	1.46	0.51	27.80	689	431	739	926
10:48:00	0.00	0.63	7.61	1.46	0.51	27.80	714	456	739	926
10:52:00	0.00	0.78	7.33	1.46	0.50	27.80	741	456	739	926
10:56:00	0.00	0.60	7.33	1.46	0.49	27.80	741	456	739	952
11:00:00	0.00	0.66	7.47	1.46	0.49	27.80	771	484	739	952
11:04:00	0.00	0.66	7.47	1.46	0.50	27.80	771	484	739	952
11:08:00	0.00	0.61	7.47	1.46	0.51	27.80	800	484	770	979
11:12:00	0.00	0.88	7.28	1.46	0.51	33.10	892	513	812	1005
11:16:00	0.00	0.58	7.65	1.46	0.49	35.80	892	513	812	976
11:20:00	0.00	0.62	7.41	1.46	0.49	35.80	892	513	812	976
11:24:00	0.00	0.86	7.70	1.46	0.49	35.80	862	513	812	976
11:28:00	0.00	0.59	7.70	1.46	0.49	35.80	862	513	812	976
11:32:00	0.00	0.64	7.33	1.46	0.51	35.80	862	540	812	1006
11:36:00	0.00	0.75	7.33	1.46	0.51	35.80	891	540	812	1006
11:40:00	0.00	0.60	7.53	1.46	0.49	35.80	891	540	812	1006
11:44:00	0.00	0.88	7.33	1.46	0.49	35.80	891	540	812	1006
11:48:00	0.00	0.58	7.52	1.46	0.49	35.80	917	540	812	1006
11:52:00	0.00	0.62	7.33	1.46	0.51	35.80	917	540	812	1006
11:56:00	0.00	0.84	7.50	1.46	0.51	35.80	917	540	839	1033
12:00:00	0.03	0.59	7.42	1.40	0.49	37.20	930	566	840	1025

9/13/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	286	240	88	127	15.00	7.84	7.08	12	81	0
10:04:00	306	254	88	127	15.00	8.50	6.94	12	81	0
10:08:00	320	271	88	127	15.00	7.40	7.62	12	81	0
10:12:00	334	286	88	127	15.00	7.03	7.62	12	81	0
10:16:00	348	299	88	127	15.00	7.72	7.38	12	905	0
10:20:00	361	299	88	127	15.00	7.25	7.67	12	905	0
10:24:00	361	312	88	127	15.00	7.23	7.72	12	905	0
10:28:00	376	312	88	127	15.00	7.59	7.38	12	905	0
10:32:00	376	326	88	127	15.00	7.01	7.52	12	905	0
10:36:00	390	326	88	127	15.00	7.35	7.47	12	905	0
10:40:00	390	340	88	127	15.00	7.55	7.38	12	1076	0
10:44:00	403	340	88	127	15.00	7.11	7.72	12	1515	0
10:48:00	403	340	88	127	15.00	7.35	7.47	12	1540	0
10:52:00	403	353	88	127	15.00	7.38	7.43	12	1686	0
10:56:00	416	353	88	127	15.00	7.16	7.67	12	1711	0
11:00:00	416	353	88	127	15.00	7.81	7.33	12	1760	0
11:04:00	416	367	88	127	15.00	7.38	7.43	12	1809	0
11:08:00	416	367	88	127	15.00	7.38	7.43	12	1662	0
11:12:00	433	367	88	127	24.80	7.91	7.18	12	1833	0
11:16:00	433	380	88	153	24.80	7.35	7.33	12	1833	0
11:20:00	447	393	88	153	24.80	7.67	7.28	12	1833	0
11:24:00	447	393	88	153	24.80	7.81	7.18	12	1833	0
11:28:00	447	393	88	153	24.80	7.03	7.57	12	1833	0
11:32:00	447	393	88	153	24.80	7.59	7.47	12	1833	0
11:36:00	461	406	88	153	24.80	7.25	7.47	12	1833	0
11:40:00	461	406	88	153	24.80	7.30	7.67	12	1833	0
11:44:00	461	406	88	153	24.80	7.81	7.38	12	1833	0
11:48:00	461	406	88	153	24.80	7.40	7.28	12	1833	0
11:52:00	474	419	88	153	24.80	7.72	7.47	12	1833	0
11:56:00	474	419	88	153	24.80	7.77	7.18	12	1833	0
12:00:00	482	425	96	170	26.70	7.42	7.52	7	1833	0

D091312.XLS

9/13/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.03	0.59	7.42	1.40	0.49	37.20	930	566	840	1025
12:04:00	3.11	0.65	7.42	1.40	0.49	37.20	930	566	840	1025
12:08:00	3.10	0.67	8.16	1.40	0.49	50.30	1140	611	983	1088
12:12:00	1.06	0.61	7.47	1.40	0.51	67.70	1172	638	935	995
12:16:00	0.51	0.88	6.98	1.40	0.51	72.00	1118	638	901	960
12:20:00	0.55	0.58	6.98	1.40	0.49	74.60	999	638	841	960
12:24:00	0.50	0.63	6.98	1.40	0.49	74.60	999	638	841	930
12:28:00	0.03	0.81	6.96	1.40	0.49	74.60	941	638	842	930
12:32:00	0.20	0.60	6.96	1.40	0.51	74.60	941	638	867	930
12:36:00	1.58	0.79	6.96	1.40	0.49	74.60	1038	638	900	930
12:40:00	1.56	0.00	7.10	1.40	0.49	77.20	907	577	774	930
12:44:00	2.06	0.00	7.09	1.40	0.47	77.20	956	640	853	903
12:48:00	2.06	0.00	7.09	1.40	0.43	77.20	956	666	888	933
12:52:00	1.93	0.00	6.85	1.40	0.43	77.20	956	666	916	1016
12:56:00	1.76	0.00	6.67	1.58	0.39	77.20	1078	626	978	1105
13:00:00	1.73	0.00	6.58	1.58	0.39	80.30	1089	703	952	1105
13:04:00	0.00	0.00	6.58	1.58	0.39	80.30	976	639	776	1067
13:08:00	0.00	0.00	6.98	1.58	0.37	76.10	848	543	607	958
13:12:00	0.00	0.00	4.36	1.74	0.39	34.20	705	365	485	908
13:16:00	0.00	0.00	4.51	1.89	0.40	27.80	769	429	679	844
13:20:00	0.05	0.00	4.35	1.89	0.00	27.80	807	518	747	789
13:24:00	0.05	0.00	4.35	1.89	0.00	27.80	839	518	747	754
13:28:00	0.05	0.00	0.01	0.00	0.00	17.00	721	389	545	721
13:32:00	0.05	0.00	0.01	0.00	0.00	17.00	793	430	579	721
13:36:00	0.09	0.00	0.01	0.00	0.00	17.00	793	459	605	721
13:40:00	0.09	0.00	0.01	0.00	0.00	17.00	820	459	605	694
13:44:00	3.50	0.00	0.01	0.00	0.00	17.00	820	459	605	663
13:48:00	1.89	0.00	0.01	0.00	0.00	17.00	820	459	605	663
13:52:00	0.36	0.00	0.01	0.00	0.00	17.00	820	459	605	629
13:56:00	0.34	0.00	0.01	0.00	0.00	17.00	820	459	605	601
14:00:00	0.04	0.00	0.00	0.00	0.00	15.80	835	475	618	574

9/13/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	482	425	96	170	26.70	7.42	7.52	7	1833	0
12:04:00	482	425	96	170	26.70	8.06	7.18	7	1833	0
12:08:00	499	425	96	170	45.60	7.94	7.33	7	1833	0
12:12:00	516	460	96	170	62.40	8.03	7.23	7	1833	0
12:16:00	532	478	96	170	66.50	7.62	7.33	7	1833	0
12:20:00	546	493	96	170	69.20	7.03	7.62	7	1833	0
12:24:00	546	493	96	170	69.20	7.45	7.62	7	1833	0
12:28:00	546	506	96	195	69.20	7.13	7.62	7	1833	0
12:32:00	561	506	96	195	69.20	7.13	7.62	7	1833	0
12:36:00	561	521	96	195	69.20	7.28	7.62	7	1833	0
12:40:00	561	521	96	195	71.90	5.50	8.99	7	1833	0
12:44:00	561	521	96	195	71.90	11.62	7.43	554	1466	0
12:48:00	574	521	96	195	71.90	5.20	12.94	51	3151	0
12:52:00	589	535	96	195	71.90	3.37	15.24	39	3151	0
12:56:00	603	549	96	195	71.90	1.47	16.70	488	2541	98
13:00:00	620	564	96	221	74.70	4.79	13.48	56	2761	98
13:04:00	620	564	96	221	74.70	4.79	13.77	42	2541	98
13:08:00	620	564	96	221	67.40	12.50	6.45	54	1149	98
13:12:00	581	541	96	221	18.10	14.63	3.27	1000	368	37
13:16:00	548	502	96	221	15.30	17.31	1.52	1000	246	37
13:20:00	533	486	96	221	15.30	17.80	1.22	1000	246	37
13:24:00	519	470	96	221	15.30	18.04	0.93	1000	246	37
13:28:00	498	454	96	221	15.30	17.29	1.08	1000	246	37
13:32:00	484	439	96	221	15.30	15.07	1.91	1000	246	37
13:36:00	470	425	96	221	15.30	15.90	1.66	1000	246	37
13:40:00	470	425	96	221	15.30	16.21	1.66	1000	246	37
13:44:00	456	425	96	221	15.30	16.21	1.66	1000	246	37
13:48:00	456	412	96	221	15.30	18.39	0.25	22	26	37
13:52:00	456	412	96	221	15.30	6.96	7.77	5	1027	37
13:56:00	443	412	96	221	15.30	6.74	7.77	5	1149	37
14:00:00	438	396	107	210	13.80	6.50	8.01	3	1320	13

9/13/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.04	0.00	0.00	0.00	0.00	15.80	835	475	618	574
14:04:00	3.50	0.00	0.00	0.00	0.00	15.80	835	475	618	574
14:08:00	1.22	0.00	0.00	0.00	0.00	15.80	835	475	618	543
14:12:00	0.45	0.00	0.00	0.00	0.00	15.80	835	475	618	543
14:16:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	517
14:20:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	517
14:24:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	517
14:28:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	488
14:32:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	488
14:36:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	488
14:40:00	0.00	0.00	0.00	0.00	0.00	15.80	835	475	618	488
14:44:00	0.00	0.00	0.00	0.00	0.00	15.80	809	475	618	462
14:48:00	0.04	0.00	0.00	0.00	0.00	15.80	809	475	618	462
14:52:00	0.04	0.00	0.00	0.00	0.00	15.80	809	475	618	462
14:56:00	0.04	0.00	0.00	0.00	0.00	15.80	809	475	618	436
15:00:00	0.04	0.00	0.00	0.00	0.00	15.80	809	475	618	436
15:04:00	0.04	0.00	0.00	0.00	0.00	15.80	809	475	618	436
15:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D091314.XLS

9/13/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	438	396	107	210	13.80	6.50	8.01	3	132	13
14:04:00	438	396	107	210	13.80	6.50	8.01	3	132	13
14:08:00	438	396	107	210	13.80	6.50	8.01	3	144	13
14:12:00	438	396	107	210	13.80	6.28	8.01	3	144	13
14:16:00	425	396	107	210	13.80	6.28	8.01	3	156	13
14:20:00	425	383	107	210	13.80	6.28	8.01	3	156	13
14:24:00	425	383	107	210	13.80	6.28	8.26	3	171	13
14:28:00	425	383	107	210	13.80	5.15	8.84	3	188	13
14:32:00	425	383	107	210	13.80	4.03	9.43	3	188	13
14:36:00	425	383	107	210	13.80	4.40	9.13	3	200	13
14:40:00	412	383	107	210	13.80	4.40	9.18	3	200	13
14:44:00	412	383	107	210	13.80	4.40	9.18	3	200	13
14:48:00	412	370	107	210	13.80	5.76	8.45	3	193	13
14:52:00	412	370	107	210	13.80	5.76	8.45	3	193	13
14:56:00	412	370	107	210	13.80	18.39	0.20	25	5	13
15:00:00	412	370	107	210	13.80	18.39	0.20	10	5	13
15:04:00	412	370	107	210	13.80	18.39	0.20	29	5	13
15:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

9/13/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

9/13/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

9/16/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
12:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
13:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D091612.XLS

9/16/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
12:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
13:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D091614.XLS

9/16/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
14:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

9/16/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
14:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D091616.XLS

9/16/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

9/16/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D093008.XLS

9/30/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.20	2.61	0.00	0.35	17.20	70	81	72	96
8:32:00	0.00	0.34	4.43	0.99	0.44	17.20	70	81	72	171
8:36:00	0.00	0.42	5.35	0.99	0.50	19.80	70	109	134	239
8:40:00	0.00	0.47	6.16	1.09	0.50	23.00	97	139	166	352
8:44:00	0.00	0.70	7.82	1.09	0.50	26.70	130	200	238	450
8:48:00	0.00	0.72	8.49	1.40	0.50	29.90	194	230	325	548
8:52:00	0.00	0.76	8.47	1.40	0.50	29.90	614	300	754	652
8:56:00	0.00	0.81	8.83	1.40	0.50	32.70	657	300	771	707
9:00:00	0.00	0.94	9.76	1.56	0.50	35.60	850	328	889	766
9:04:00	0.00	0.91	9.29	1.67	0.50	35.60	778	356	916	800
9:08:00	0.00	0.98	9.13	1.67	0.50	35.60	778	356	977	833
9:12:00	0.00	0.88	9.00	1.67	0.50	35.60	1080	384	1050	920
9:16:00	0.00	0.84	9.00	1.67	0.50	35.60	1080	413	1084	946
9:20:00	0.00	0.88	9.12	1.67	0.50	35.60	1106	413	1157	1019
9:24:00	0.00	0.90	9.23	1.67	0.50	35.60	1145	441	1186	1019
9:28:00	0.00	0.91	9.20	1.67	0.50	35.60	1084	441	1215	1078
9:32:00	0.00	0.92	9.06	1.67	0.50	35.60	1084	471	1215	1104
9:36:00	0.00	0.93	8.98	1.67	0.50	35.60	1118	471	1244	1104
9:40:00	0.00	0.99	8.82	1.67	0.50	38.20	1118	471	1270	1131
9:44:00	0.00	0.99	9.06	1.67	0.50	38.20	1154	497	1270	1181
9:48:00	0.00	1.02	9.19	1.67	0.50	38.20	1154	497	1299	1181
9:52:00	0.00	1.08	9.32	1.67	0.50	38.20	1154	528	1326	1208
9:56:00	0.00	1.15	9.25	1.67	0.50	40.90	1161	528	1326	1208
10:00:00	0.46	1.15	9.13	1.70	0.50	41.80	1157	555	1327	1238

D093008.XLS

9/30/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	77	74	65	69	14.00	10.87	4.64	93	27	13
8:32:00	91	90	65	69	14.00	7.25	6.94	25	47	13
8:36:00	131	104	65	69	14.00	7.25	7.08	25	61	13
8:40:00	160	137	65	69	14.00	7.08	6.99	25	61	13
8:44:00	180	155	65	69	14.00	7.86	6.69	49	59	13
8:48:00	214	184	65	69	14.00	7.99	7.08	34	39	13
8:52:00	248	214	65	69	17.20	5.64	8.35	34	110	13
8:56:00	266	246	65	69	17.20	5.62	8.35	34	110	13
9:00:00	297	259	65	69	17.20	6.18	7.77	20	122	13
9:04:00	297	273	65	69	17.20	5.96	7.91	20	100	13
9:08:00	297	273	65	69	17.20	5.54	8.40	20	100	13
9:12:00	314	287	65	69	17.20	3.76	9.38	20	73	13
9:16:00	329	305	65	69	17.20	3.79	9.38	20	73	13
9:20:00	347	305	65	69	17.20	3.52	9.67	7	73	13
9:24:00	347	318	65	69	17.20	3.74	9.52	7	73	13
9:28:00	362	332	65	69	17.20	3.74	9.57	7	73	13
9:32:00	362	332	65	69	17.20	4.01	9.33	7	73	13
9:36:00	379	332	65	69	17.20	4.01	9.33	7	73	13
9:40:00	379	348	65	94	19.80	3.88	9.33	7	73	13
9:44:00	379	348	65	94	19.80	4.15	9.33	7	73	13
9:48:00	401	361	65	94	19.80	4.52	9.09	7	73	13
9:52:00	401	361	65	94	19.80	4.25	9.13	7	0	13
9:56:00	416	376	65	94	19.80	4.37	9.04	7	83	13
10:00:00	425	384	71	106	20.50	4.59	8.89	3	83	13

D093010.XLS

9/30/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.46	1.15	9.13	1.70	0.50	41.80	1157	555	1327	1238
10:04:00	3.50	1.14	9.21	1.70	0.50	41.80	1157	555	1327	1238
10:08:00	0.60	1.14	9.09	1.70	0.50	41.80	1411	555	1348	1238
10:12:00	0.96	0.95	8.88	1.70	0.50	44.80	1455	587	1373	1264
10:16:00	1.01	1.06	8.89	1.70	0.50	86.00	1527	648	1216	1110
10:20:00	0.95	1.06	8.72	1.70	0.50	97.20	1435	648	1046	1019
10:24:00	0.89	1.09	8.72	1.70	0.50	104.00	1348	648	1017	993
10:28:00	1.09	1.12	8.72	1.70	0.50	104.00	1351	648	976	993
10:32:00	1.09	1.10	8.72	1.70	0.50	128.70	1447	696	1040	966
10:36:00	0.90	1.10	8.72	1.70	0.50	138.90	1359	696	976	966
10:40:00	0.53	1.09	8.72	1.70	0.50	141.70	1214	729	841	966
10:44:00	0.50	1.05	8.40	1.58	0.50	178.50	1432	759	991	932
10:48:00	0.58	1.00	8.19	1.58	0.50	196.50	1359	796	928	900
10:52:00	0.43	0.00	8.01	1.58	0.50	203.70	966	763	727	900
10:56:00	0.60	0.00	4.30	1.06	0.50	107.00	585	369	428	747
11:00:00	1.59	0.00	2.63	0.00	0.50	25.80	574	280	390	740
11:04:00	1.49	0.23	2.98	0.00	0.50	17.60	867	383	687	785
11:08:00	0.57	0.29	3.84	0.95	0.50	20.70	975	477	787	820
11:12:00	0.83	0.43	5.90	0.95	0.50	23.90	1009	504	887	849
11:16:00	0.91	0.94	8.91	1.66	0.50	35.50	1160	581	1048	982
11:20:00	0.84	1.06	9.15	1.66	0.50	41.50	1151	612	1089	1052
11:24:00	0.80	1.05	9.33	1.66	0.50	41.50	1151	612	1089	1130
11:28:00	0.74	1.04	8.81	1.66	0.50	41.50	1212	639	1133	1192
11:32:00	0.79	1.02	8.96	1.66	0.50	44.40	1241	639	1151	1192
11:36:00	0.74	1.01	9.13	1.66	0.50	44.40	1211	639	1124	1223
11:40:00	0.74	0.99	9.13	1.66	0.50	44.40	1186	639	1068	1253
11:44:00	0.70	0.98	9.13	1.66	0.50	44.40	1230	667	1093	1280
11:48:00	0.76	1.01	9.13	1.66	0.50	44.40	1230	667	1099	1313
11:52:00	0.70	1.01	9.13	1.66	0.50	44.40	1238	667	1118	1345
11:56:00	0.78	1.03	9.13	1.66	0.50	44.40	1279	667	1135	1381
12:00:00	0.74	1.04	9.16	1.74	0.50	45.30	1483	690	1165	1390

D093010.XLS

9/30/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	425	384	71	106	20.50	4.59	8.89	3	83	13
10:04:00	425	384	71	106	20.50	4.74	8.79	3	83	13
10:08:00	425	399	71	106	20.50	5.15	8.55	3	83	13
10:12:00	438	399	71	106	20.50	5.45	8.55	3	51	13
10:16:00	494	468	71	136	78.80	6.81	7.62	3	86	13
10:20:00	534	493	71	136	89.70	6.81	7.62	3	98	13
10:24:00	548	512	71	136	96.60	6.28	7.96	3	98	13
10:28:00	567	532	71	136	99.20	5.13	8.60	3	73	13
10:32:00	582	563	71	163	123.50	4.91	8.84	3	73	13
10:36:00	605	590	71	163	133.60	4.59	8.84	3	61	13
10:40:00	622	608	71	163	137.30	4.30	9.09	3	61	13
10:44:00	662	633	71	199	175.10	4.25	9.43	3	61	13
10:48:00	662	649	71	199	192.90	3.86	9.43	3	61	13
10:52:00	680	663	97	199	197.30	4.35	9.04	3	81	13
10:56:00	548	555	97	199	96.70	11.92	3.08	15	22	13
11:00:00	453	463	97	170	17.20	10.99	2.40	15	10	13
11:04:00	433	408	97	170	14.40	13.19	3.62	286	10	13
11:08:00	419	392	97	170	14.40	9.08	6.16	10	27	13
11:12:00	419	392	97	170	14.40	8.99	6.16	10	27	13
11:16:00	438	392	97	170	14.40	9.38	6.30	10	51	13
11:20:00	453	429	97	170	19.10	6.23	7.96	10	108	13
11:24:00	482	445	97	170	19.10	5.62	8.21	10	108	13
11:28:00	482	458	97	170	19.10	5.76	8.21	10	108	13
11:32:00	495	458	97	170	19.10	6.30	7.91	10	132	13
11:36:00	495	471	97	170	19.10	6.30	7.91	10	132	13
11:40:00	512	471	97	170	19.10	6.25	7.91	10	144	13
11:44:00	512	471	97	170	19.10	6.06	8.16	10	144	13
11:48:00	512	484	97	170	19.10	5.69	8.16	10	144	13
11:52:00	512	484	97	170	19.10	4.93	8.79	10	132	13
11:56:00	512	484	97	170	19.10	5.01	8.79	10	144	13
12:00:00	529	499	92	162	20.40	5.01	8.79	0	134	13

D093012.XLS

9/30/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.74	1.04	9.16	1.74	0.50	45.30	1483	690	1165	1390
12:04:00	0.74	0.94	9.16	1.74	0.50	78.70	1720	777	1439	1333
12:08:00	0.70	0.95	9.16	1.74	0.50	97.70	1684	777	1247	1223
12:12:00	0.70	0.94	9.16	1.74	0.50	121.80	1684	846	1210	1145
12:16:00	0.70	0.94	8.99	1.74	0.50	146.30	1644	846	1141	1087
12:20:00	0.76	0.94	8.99	1.74	0.50	156.20	1601	877	1115	1053
12:24:00	0.76	0.94	8.99	1.74	0.50	163.70	1476	877	1028	1053
12:28:00	0.71	0.95	9.14	1.74	0.50	163.70	1455	877	988	1053
12:32:00	0.70	0.96	9.14	1.74	0.50	163.70	1480	877	1021	1053
12:36:00	0.70	0.96	9.14	1.74	0.50	163.70	1480	877	1021	1053
12:40:00	0.70	0.96	9.14	1.74	0.50	163.70	1405	881	928	1053
12:44:00	0.74	0.97	9.14	1.74	0.50	163.70	1446	881	956	1053
12:48:00	0.71	1.00	9.14	1.74	0.50	163.70	1476	881	989	1053
12:52:00	0.74	1.01	9.14	1.74	0.50	163.70	1483	911	998	1053
12:56:00	0.75	1.04	9.14	1.74	0.50	161.10	1494	911	1017	1053
13:00:00	0.75	1.09	9.01	1.74	0.50	161.10	1471	911	975	1053
13:04:00	0.76	1.07	9.21	1.74	0.50	161.10	1502	911	1031	1053
13:08:00	0.72	1.06	9.21	1.74	0.50	161.10	1489	911	1009	1053
13:12:00	0.72	1.04	9.21	1.74	0.50	161.10	1510	911	1048	1081
13:16:00	0.72	1.03	9.20	1.74	0.50	161.10	1493	911	1009	1081
13:20:00	0.80	1.02	9.20	1.74	0.50	161.10	1502	911	1063	1081
13:24:00	1.27	1.00	9.20	1.74	0.50	161.10	1439	911	962	1081
13:28:00	1.99	0.99	9.20	1.74	0.50	161.10	1466	911	996	1081
13:32:00	0.76	0.92	9.05	1.74	0.50	161.10	1432	911	950	1081
13:36:00	0.09	0.87	9.26	1.74	0.50	161.10	1448	911	963	1081
13:40:00	0.00	0.82	9.26	1.74	0.50	161.10	1466	911	1004	1081
13:44:00	0.00	0.00	4.14	1.08	0.50	46.00	737	416	462	952
13:48:00	0.34	0.00	0.01	1.33	0.00	18.20	896	506	547	1005
13:52:00	0.00	0.00	0.01	1.33	0.00	18.20	1048	669	758	1005
13:56:00	0.03	0.00	0.01	1.33	0.00	18.20	1083	669	789	976
14:00:00	0.13	0.00	0.01	1.32	0.00	15.80	1057	659	727	931

D093012.XLS

9/30/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	529	499	92	162	20.40	5.01	8.79	0	134	13
12:04:00	563	534	92	162	71.50	6.11	8.11	0	200	13
12:08:00	600	575	92	190	91.40	6.40	8.11	0	244	13
12:12:00	639	602	92	190	116.60	6.30	8.11	0	244	13
12:16:00	677	650	92	190	141.40	6.01	8.11	0	254	13
12:20:00	677	664	92	190	151.30	5.98	8.11	0	254	13
12:24:00	692	678	92	190	158.70	6.06	8.11	0	259	13
12:28:00	692	678	119	190	158.70	6.37	7.86	0	264	13
12:32:00	692	678	119	190	158.70	6.37	7.86	0	266	13
12:36:00	711	693	119	190	158.70	6.62	7.86	0	266	13
12:40:00	711	693	119	190	158.70	6.62	7.86	0	266	13
12:44:00	711	693	119	190	158.70	6.62	7.86	0	266	13
12:48:00	711	693	119	190	158.70	6.62	7.86	0	269	13
12:52:00	726	693	119	190	156.00	6.62	7.86	0	264	13
12:56:00	726	693	119	190	156.00	6.62	7.86	0	264	13
13:00:00	726	711	119	216	156.00	6.62	7.86	0	261	13
13:04:00	726	711	119	216	156.00	6.40	7.86	0	247	13
13:08:00	726	711	119	216	156.00	6.40	7.86	0	247	13
13:12:00	726	711	119	216	156.00	6.40	7.86	0	247	13
13:16:00	739	711	119	216	156.00	6.40	7.86	0	247	13
13:20:00	739	711	119	216	156.00	6.40	7.86	0	191	13
13:24:00	739	725	119	216	156.00	6.40	7.86	0	110	13
13:28:00	739	725	119	216	156.00	6.40	7.86	0	198	13
13:32:00	739	725	119	216	156.00	6.40	7.86	0	298	13
13:36:00	739	725	119	216	156.00	6.40	7.86	0	337	13
13:40:00	739	725	119	216	156.00	6.40	7.86	0	357	13
13:44:00	612	628	119	216	17.80	12.31	2.54	90	34	13
13:48:00	567	543	119	216	15.10	15.43	1.66	71	22	13
13:52:00	553	527	119	216	15.10	17.73	0.59	44	22	13
13:56:00	535	491	119	216	15.10	18.02	0.34	17	22	13
14:00:00	509	483	116	217	13.70	17.85	0.74	15	22	13

D093014.XLS

9/30/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.13	0.00	0.01	1.32	0.00	15.80	1057	659	727	931
14:04:00	0.13	0.00	0.01	1.32	0.00	15.80	1057	659	727	931
14:08:00	0.13	0.00	0.01	1.32	0.00	15.80	1057	659	727	901
14:12:00	0.13	0.00	0.01	1.32	0.00	15.80	1057	659	727	874
14:16:00	3.50	0.00	0.01	1.32	0.00	15.80	1057	659	727	874
14:20:00	3.50	0.00	0.01	1.32	0.00	15.80	1057	659	727	845
14:24:00	2.86	0.00	0.01	1.32	0.00	15.80	1057	659	804	881
14:28:00	2.90	0.00	0.01	1.32	0.00	15.80	1088	659	842	851
14:32:00	2.90	0.00	1.74	0.00	0.00	15.80	1062	601	740	843
14:36:00	2.91	0.22	3.05	0.82	0.45	15.80	1062	627	846	843
14:40:00	2.89	0.39	6.07	0.82	0.57	23.20	1062	627	899	871
14:44:00	2.84	1.25	8.95	1.18	0.50	29.70	1189	686	1054	993
14:48:00	2.82	1.25	11.82	1.52	0.50	39.90	1306	713	1165	1123
14:52:00	2.88	1.18	11.82	1.96	0.50	43.70	1455	742	1325	1265
14:56:00	2.87	1.25	11.82	1.96	0.50	51.90	1550	782	1397	1353
15:00:00	0.48	1.25	10.39	1.80	0.50	54.70	1550	782	1368	1393
15:04:00	0.47	1.25	8.82	1.80	0.50	59.80	1657	815	1504	1450
15:08:00	0.48	1.22	9.21	1.80	0.50	93.90	1759	858	1474	1380
15:12:00	0.25	1.17	9.36	1.80	0.50	107.70	1699	892	1379	1350
15:16:00	0.43	1.25	9.36	1.80	0.50	115.30	1616	892	1308	1318
15:20:00	0.18	1.25	9.60	1.80	0.50	92.90	1143	755	1008	1381
15:24:00	0.56	1.25	9.42	1.80	0.50	105.50	1646	892	1424	1419
15:28:00	0.88	1.23	9.42	1.80	0.50	113.10	1508	920	1307	1393
15:32:00	0.56	1.13	9.42	1.80	0.50	121.30	1548	920	1378	1393
15:36:00	0.34	1.25	9.24	1.80	0.50	146.50	1737	978	1361	1331
15:40:00	0.61	1.25	9.24	1.80	0.50	159.30	1677	978	1308	1299
15:44:00	0.74	1.23	9.26	1.80	0.50	162.40	1645	1005	1279	1299
15:48:00	0.62	1.17	9.41	1.80	0.49	165.40	1579	1005	1279	1299
15:52:00	0.57	1.07	9.41	1.80	0.49	168.20	1517	1005	1208	1299
15:56:00	0.62	1.16	9.41	1.80	0.50	168.20	1582	1005	1246	1299
16:00:00	0.59	1.25	9.51	1.75	0.50	169.60	1606	1029	1257	1294

D093014.XLS

9/30/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	509	483	116	217	13.70	17.85	0.74	15	22	13
14:04:00	509	483	116	217	13.70	17.85	0.74	15	22	13
14:08:00	494	467	116	217	13.70	17.85	0.74	15	22	13
14:12:00	494	467	116	217	13.70	17.85	0.74	15	22	13
14:16:00	480	451	116	217	13.70	17.85	0.74	15	22	13
14:20:00	480	451	116	217	13.70	17.85	0.74	15	22	13
14:24:00	465	451	116	217	13.70	17.85	0.49	15	22	13
14:28:00	465	435	116	217	13.70	18.07	0.20	3	7	13
14:32:00	465	435	117	217	13.70	18.07	0.20	64	7	13
14:36:00	450	435	117	217	13.70	14.77	3.23	569	7	13
14:40:00	463	421	117	217	13.70	10.35	5.37	20	20	13
14:44:00	480	434	117	217	13.70	6.64	7.91	7	76	13
14:48:00	514	475	117	217	13.70	6.33	8.16	7	88	13
14:52:00	529	504	117	217	19.70	3.49	9.72	7	76	13
14:56:00	568	539	117	217	36.20	3.62	9.33	7	76	13
15:00:00	581	554	117	217	36.20	3.79	9.57	7	76	13
15:04:00	595	569	117	217	48.70	3.42	9.62	7	76	13
15:08:00	638	617	117	217	85.90	3.27	9.82	7	64	13
15:12:00	673	648	117	217	98.80	3.79	9.62	7	64	13
15:16:00	689	680	117	217	103.00	4.01	9.38	7	76	13
15:20:00	689	666	117	217	79.10	4.10	9.18	7	76	13
15:24:00	689	666	143	217	96.10	3.69	9.38	7	76	13
15:28:00	702	697	143	217	103.30	3.37	9.67	7	64	13
15:32:00	717	710	143	217	111.80	3.47	9.87	7	64	13
15:36:00	762	730	143	217	139.90	3.76	9.57	7	64	13
15:40:00	784	761	143	244	152.30	3.52	9.67	7	64	13
15:44:00	784	775	143	244	155.10	3.52	9.92	7	64	13
15:48:00	784	775	143	244	158.20	3.32	9.67	7	64	13
15:52:00	801	791	143	244	161.00	3.81	9.67	7	64	13
15:56:00	816	791	143	270	161.00	3.91	9.67	7	64	13
16:00:00	816	804	159	276	162.20	3.98	9.38	0	66	13

D093016.XLS

9/30/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.59	1.25	9.51	1.75	0.50	169.60	1606	1029	1257	1294
16:04:00	0.63	1.25	9.35	1.75	0.50	169.60	1587	1029	1245	1294
16:08:00	0.65	1.21	9.50	1.75	0.50	169.60	1587	1029	1245	1294
16:12:00	0.60	1.15	9.50	1.75	0.50	169.60	1544	1029	1215	1294
16:16:00	0.59	1.09	9.50	1.75	0.50	169.60	1553	1029	1207	1294
16:20:00	0.57	1.12	9.50	1.75	0.50	169.60	1612	1054	1228	1324
16:24:00	1.20	0.00	6.36	1.44	0.50	114.70	968	592	760	1133
16:28:00	2.70	0.00	0.01	0.00	0.00	16.70	909	443	573	1117
16:32:00	0.70	0.00	0.01	0.00	0.00	16.70	1059	621	756	923
16:36:00	0.63	0.00	0.01	0.00	0.00	16.70	1121	694	822	828
16:40:00	0.00	0.00	0.01	0.00	0.00	16.70	1147	721	878	758
16:44:00	0.00	0.00	0.01	0.00	0.00	16.70	1147	721	878	758
16:48:00	0.00	0.00	0.01	0.00	0.00	16.70	1173	721	878	729
16:52:00	0.00	0.00	0.01	0.00	0.00	16.70	1173	721	878	696
16:56:00	0.00	0.00	0.01	0.00	0.00	16.70	1173	721	878	666
17:00:00	0.00	0.00	0.01	0.00	0.00	16.70	1173	721	878	640
17:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D093016.XLS

9/30/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	816	804	159	276	162.20	3.98	9.38	0	66	13
16:04:00	816	804	159	276	162.20	3.71	9.43	0	66	13
16:08:00	816	804	159	276	162.20	3.54	9.67	0	66	13
16:12:00	816	804	159	276	162.20	3.54	9.77	0	66	13
16:16:00	832	821	159	244	162.20	3.86	9.77	0	66	13
16:20:00	832	821	159	244	162.20	3.88	9.48	0	54	13
16:24:00	752	741	159	244	105.90	13.85	2.69	0	20	13
16:28:00	627	616	159	244	16.00	12.16	3.08	112	27	13
16:32:00	595	576	133	244	16.00	7.64	7.67	47	213	13
16:36:00	582	562	133	244	16.00	13.04	3.23	20	83	13
16:40:00	566	548	133	244	16.00	18.04	0.44	7	22	13
16:44:00	566	529	133	244	16.00	18.04	0.15	7	10	13
16:48:00	551	529	133	244	16.00	18.04	0.15	7	10	13
16:52:00	551	515	133	244	16.00	17.73	0.15	7	10	13
16:56:00	535	502	133	244	16.00	17.46	0.15	7	10	13
17:00:00	535	502	133	244	16.00	17.21	0.15	7	10	13
17:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D100208.XLS

10/2/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.02	0.22	4.50	1.03	0.40	18.20	211	200	277	349
8:12:00	0.02	0.38	5.50	1.03	0.50	20.80	211	200	382	485
8:16:00	0.02	0.36	7.73	1.03	0.50	27.30	228	200	513	619
8:20:00	0.02	0.36	7.93	1.03	0.50	27.30	259	200	557	691
8:24:00	0.02	0.37	9.09	1.03	0.50	29.90	649	200	653	783
8:28:00	0.02	0.41	11.09	1.19	0.50	32.70	691	200	753	895
8:32:00	0.02	0.46	11.28	1.19	0.50	35.30	726	200	786	937
8:36:00	0.02	0.45	10.94	1.19	0.50	35.30	798	200	868	988
8:40:00	0.02	0.47	10.94	1.19	0.50	35.30	884	200	941	1063
8:44:00	0.02	0.48	10.67	1.19	0.50	35.30	884	200	972	1094
8:48:00	0.02	0.50	10.80	1.19	0.50	35.30	1213	430	1194	1094
8:52:00	0.02	0.54	11.23	1.19	0.50	35.30	1213	490	1194	1149
8:56:00	0.02	0.53	10.70	1.19	0.51	35.30	907	490	1164	1177
9:00:00	0.02	0.53	10.80	1.19	0.49	35.30	1284	517	1218	1208
9:04:00	0.02	0.54	10.93	1.19	0.49	35.30	1284	517	1218	1234
9:08:00	0.02	0.54	10.95	1.19	0.49	35.30	1315	517	1218	1234
9:12:00	0.02	0.53	10.76	1.19	0.49	35.30	1315	544	1218	1275
9:16:00	0.02	0.53	11.45	1.30	0.49	35.30	1352	544	1252	1275
9:20:00	0.02	0.54	11.39	1.30	0.49	35.30	1373	544	1295	1315
9:24:00	0.02	0.00	1.47	0.67	0.49	20.70	764	336	684	942
9:28:00	0.02	0.00	0.01	0.00	0.49	16.70	733	336	647	876
9:32:00	0.02	0.00	0.01	0.00	0.49	16.70	733	336	647	806
9:36:00	0.02	0.00	0.01	0.00	0.49	16.70	706	336	620	752
9:40:00	0.02	0.13	2.95	0.00	0.49	16.70	846	407	756	779
9:44:00	0.02	0.31	8.91	1.14	0.49	24.20	1029	450	959	910
9:48:00	0.02	0.36	7.58	1.14	0.49	24.20	917	450	964	959
9:52:00	0.02	0.37	9.66	1.14	0.51	27.70	1009	477	1066	1050
9:56:00	0.02	0.38	9.66	1.14	0.49	27.70	1200	477	1095	1111
10:00:00	0.00	0.40	8.99	1.11	0.50	28.90	1199	480	1029	1167

D100208.XLS

10/2/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	197	162	93	109	13.80	4.30	8.45	105	64	1
8:12:00	214	182	93	109	13.80	2.69	9.38	1000	56	1
8:16:00	250	218	93	109	13.80	6.11	7.86	515	56	1
8:20:00	267	236	93	109	13.80	4.15	8.99	122	81	1
8:24:00	299	266	93	109	13.80	3.59	9.43	59	112	1
8:28:00	318	279	93	109	13.80	4.76	8.65	27	125	1
8:32:00	337	307	93	109	13.80	4.08	9.43	15	125	1
8:36:00	337	307	93	109	13.80	3.66	9.38	15	125	1
8:40:00	350	320	93	109	17.60	3.62	9.67	15	125	1
8:44:00	364	333	93	109	17.60	3.66	9.67	15	137	1
8:48:00	364	333	93	109	17.60	3.66	9.67	15	137	1
8:52:00	379	347	93	109	17.60	3.57	9.52	15	137	1
8:56:00	379	347	93	109	17.60	3.47	9.57	3	137	1
9:00:00	379	360	93	109	17.60	3.42	9.57	3	137	1
9:04:00	393	360	93	109	17.60	3.37	9.67	3	137	1
9:08:00	393	360	93	109	17.60	3.44	9.52	3	137	1
9:12:00	393	374	93	109	17.60	3.57	9.57	3	137	1
9:16:00	406	374	93	109	17.60	3.86	9.33	3	137	1
9:20:00	406	374	93	109	17.60	3.93	9.33	3	137	1
9:24:00	377	372	93	109	15.00	16.92	1.17	100	7	1
9:28:00	339	312	93	109	15.00	14.48	1.86	232	7	1
9:32:00	326	298	93	109	15.00	15.85	1.57	327	7	1
9:36:00	312	298	93	109	15.00	16.41	1.32	244	7	1
9:40:00	312	284	93	109	15.00	11.18	4.50	1000	7	1
9:44:00	325	284	93	109	15.00	5.62	7.57	1000	22	1
9:48:00	339	313	93	109	15.00	5.13	9.28	147	73	1
9:52:00	353	331	93	109	15.00	3.88	9.67	29	115	1
9:56:00	368	331	93	109	15.00	3.88	9.57	15	127	1
10:00:00	377	349	94	125	14.70	3.64	9.72	10	110	1

10/2/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.40	8.99	1.11	0.50	28.90	1199	480	1029	1167
10:04:00	0.00	0.44	8.75	1.33	0.50	28.90	1314	480	1149	1199
10:08:00	0.00	0.48	8.75	1.54	0.50	28.90	1314	508	1149	1228
10:12:00	0.00	0.46	8.96	1.54	0.50	31.50	1339	508	1150	1228
10:16:00	0.00	0.46	8.70	1.54	0.50	31.50	1339	508	1122	1258
10:20:00	0.00	0.46	8.84	1.65	0.50	35.00	1455	573	1316	1284
10:24:00	0.00	0.47	8.69	1.65	0.50	52.60	1579	635	1369	1253
10:28:00	0.00	0.49	8.74	1.65	0.50	72.80	1579	665	1170	1151
10:32:00	0.00	0.49	8.89	1.65	0.50	79.10	1579	692	1143	1125
10:36:00	0.00	0.52	8.91	1.65	0.50	84.70	1579	692	1117	1125
10:40:00	0.00	0.54	8.98	1.65	0.50	87.80	1537	723	1032	1161
10:44:00	0.00	0.54	9.40	1.65	0.50	90.70	1567	751	1043	1195
10:48:00	0.00	0.53	9.80	1.53	0.50	90.70	1294	725	815	1195
10:52:00	0.00	0.00	0.01	0.00	0.00	17.70	813	330	523	1061
10:56:00	0.00	0.00	0.01	0.00	0.00	17.70	885	366	642	984
11:00:00	0.00	0.00	0.01	0.00	0.00	17.70	885	396	670	920
11:04:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	848
11:08:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	789
11:12:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	764
11:16:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	699
11:20:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	668
11:24:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	640
11:28:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	640
11:32:00	0.00	0.00	0.01	0.00	0.64	17.70	910	396	670	679
11:36:00	0.00	0.00	0.01	0.00	0.66	17.70	910	396	670	740
11:40:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	540
11:44:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	504
11:48:00	0.00	0.00	0.01	0.00	0.00	17.70	910	396	670	471
11:52:00	0.00	0.00	0.01	0.00	0.00	17.70	883	396	670	471
11:56:00	0.00	0.00	0.01	0.00	0.00	17.70	851	368	670	444
12:00:00	0.00	0.00	0.01	0.00	0.00	15.50	855	382	684	427

10/2/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	377	349	94	125	14.70	3.64	9.72	10	110	1
10:04:00	377	349	94	125	14.70	3.59	9.57	10	110	1
10:08:00	393	349	94	125	14.70	4.93	8.65	10	93	1
10:12:00	393	363	94	125	14.70	5.64	8.26	10	93	1
10:16:00	393	377	94	125	14.70	5.30	8.40	10	93	1
10:20:00	407	377	94	125	23.90	4.76	8.79	10	81	1
10:24:00	448	409	94	125	47.20	4.32	8.84	10	81	1
10:28:00	495	456	94	125	66.80	4.05	9.09	10	81	1
10:32:00	530	498	94	125	74.40	3.20	9.72	10	81	1
10:36:00	552	517	94	125	78.20	3.59	9.38	10	93	1
10:40:00	571	532	94	125	81.20	1.98	10.60	10	93	1
10:44:00	571	552	94	150	84.00	2.30	10.31	10	93	1
10:48:00	589	566	94	150	84.00	2.13	10.60	10	95	1
10:52:00	442	465	94	150	15.70	4.86	5.96	173	27	1
10:56:00	409	401	94	150	15.70	8.11	4.64	29	39	1
11:00:00	393	385	94	150	15.70	10.38	3.76	29	39	1
11:04:00	393	370	94	150	15.70	9.72	3.76	29	5	1
11:08:00	380	354	94	150	15.70	9.47	3.76	29	5	1
11:12:00	380	354	94	150	15.70	9.47	3.76	29	5	1
11:16:00	360	339	94	150	15.70	9.47	3.76	29	5	1
11:20:00	360	339	94	150	15.70	9.47	3.76	29	5	1
11:24:00	360	339	94	150	15.70	9.47	3.76	29	5	1
11:28:00	345	339	94	150	15.70	9.47	3.76	29	5	1
11:32:00	345	323	94	150	15.70	9.47	3.76	29	5	1
11:36:00	345	323	94	150	15.70	9.47	3.76	29	5	1
11:40:00	345	323	94	150	15.70	9.47	3.76	29	5	1
11:44:00	345	323	94	150	15.70	9.47	3.76	29	5	1
11:48:00	332	310	94	150	15.70	9.69	3.76	29	5	1
11:52:00	332	310	94	150	15.70	9.69	3.76	29	5	1
11:56:00	332	310	94	150	15.70	9.69	3.76	29	5	1
12:00:00	322	306	98	135	13.50	9.89	3.67	22	0	1

D100212.XLS

10/2/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.00	0.01	0.00	0.00	15.50	855	382	684	427
12:04:00	0.00	0.00	0.01	0.00	0.00	15.50	855	382	684	427
12:08:00	0.00	0.00	1.41	0.00	0.41	15.50	894	410	732	705
12:12:00	0.00	0.06	2.83	0.99	0.33	15.50	894	410	758	705
12:16:00	0.00	0.11	2.83	0.99	0.34	18.20	894	410	786	705
12:20:00	0.00	0.36	5.83	1.11	0.49	21.20	971	452	847	757
12:24:00	0.00	0.37	7.12	1.24	0.49	24.00	1075	480	904	892
12:28:00	0.00	0.42	8.36	1.39	0.49	27.70	1211	537	1081	1040
12:32:00	0.00	0.44	8.79	1.49	0.49	38.30	1329	565	1205	1083
12:36:00	0.00	0.47	8.97	1.59	0.49	52.60	1355	598	1125	1052
12:40:00	0.00	0.53	8.75	1.59	0.49	55.50	1355	627	1125	1052
12:44:00	0.00	0.54	8.75	1.59	0.49	55.50	1355	627	1153	1078
12:48:00	0.00	0.55	8.75	1.59	0.49	55.50	1384	627	1164	1112
12:52:00	0.00	0.54	9.05	1.70	0.49	55.50	1467	664	1239	1182
12:56:00	0.00	0.53	9.08	1.81	0.49	58.80	1430	664	1231	1208
13:00:00	0.00	0.52	9.65	1.77	0.49	58.80	1481	664	1276	1239
13:04:00	0.00	0.52	9.98	1.90	0.49	58.80	1493	693	1331	1239
13:08:00	0.00	0.52	9.92	1.80	0.49	58.80	1493	693	1298	1270
13:12:00	0.00	0.51	9.29	1.80	0.49	61.40	1539	693	1357	1299
13:16:00	0.00	0.50	9.81	1.80	0.49	64.30	1565	726	1392	1299
13:20:00	0.00	0.50	9.68	1.80	0.49	64.30	1539	726	1351	1299
13:24:00	3.50	0.52	9.76	1.80	0.49	67.00	1567	756	1376	1326
13:28:00	3.50	0.53	9.80	1.80	0.49	67.00	1560	729	1369	1354
13:32:00	3.50	0.52	9.81	1.80	0.49	67.00	1596	759	1428	1386
13:36:00	0.66	0.51	9.91	1.80	0.49	67.00	1650	785	1463	1386
13:40:00	0.71	0.52	9.72	1.80	0.49	80.00	1772	819	1533	1386
13:44:00	0.75	0.53	9.84	1.80	0.49	106.40	1772	870	1373	1319
13:48:00	0.71	0.54	9.72	1.80	0.49	135.30	1727	906	1302	1249
13:52:00	0.69	0.00	9.69	1.80	0.49	165.00	1478	906	1186	1096
13:56:00	0.79	0.39	8.04	1.67	0.49	175.00	1231	803	1076	990
14:00:00	3.50	0.44	8.22	1.57	0.50	155.80	1031	796	950	1024

D100212.XLS

10/2/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	322	306	98	135	13.50	9.89	3.67	22	0	1
12:04:00	322	306	98	135	13.50	9.89	3.67	22	0	1
12:08:00	322	306	98	135	13.50	9.89	3.67	22	0	1
12:12:00	322	306	98	135	13.50	17.92	0.49	42	7	1
12:16:00	322	306	98	135	13.50	10.96	5.18	22	51	1
12:20:00	322	306	98	135	13.50	7.28	7.38	5	78	1
12:24:00	351	323	98	135	13.50	4.52	8.74	5	90	1
12:28:00	374	342	98	135	13.50	3.10	10.01	10	69	1
12:32:00	407	371	98	135	31.50	4.54	8.99	10	110	1
12:36:00	437	417	98	135	44.60	4.86	8.74	10	105	1
12:40:00	454	431	98	135	47.20	4.81	8.74	10	81	1
12:44:00	469	448	98	135	47.20	4.59	8.89	10	81	1
12:48:00	489	462	98	135	47.20	2.57	10.16	10	81	1
12:52:00	489	462	98	135	47.20	2.71	10.01	10	81	1
12:56:00	507	479	98	135	49.80	3.05	9.67	10	100	1
13:00:00	521	492	98	135	49.80	3.05	9.67	10	78	1
13:04:00	521	492	98	135	49.80	3.27	9.67	10	105	1
13:08:00	521	508	98	135	49.80	3.52	9.67	10	81	1
13:12:00	537	508	98	135	52.60	3.83	9.38	10	81	1
13:16:00	537	522	98	161	55.40	4.52	9.04	10	105	1
13:20:00	550	522	98	161	55.40	4.86	8.74	10	90	1
13:24:00	550	539	98	161	55.40	3.86	9.33	10	90	1
13:28:00	565	539	98	161	55.40	2.86	10.06	10	95	1
13:32:00	565	552	98	161	55.40	2.86	10.06	10	110	1
13:36:00	578	552	98	161	58.20	3.25	9.92	10	90	1
13:40:00	598	568	98	161	73.00	3.86	9.62	10	76	1
13:44:00	634	598	98	161	101.20	4.30	9.28	10	56	1
13:48:00	673	657	98	190	131.00	4.64	9.04	10	56	1
13:52:00	700	675	98	190	160.80	6.50	6.99	10	56	1
13:56:00	681	661	98	190	168.90	11.53	4.93	10	51	1
14:00:00	681	664	120	200	150.20	7.50	7.28	0	112	1

D100214.XLS

10/2/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	3.50	0.44	8.22	1.57	0.50	155.80	1031	796	950	1024
14:04:00	3.50	0.49	8.09	1.57	0.50	144.90	988	796	875	1057
14:08:00	3.50	0.49	8.17	1.57	0.50	138.30	1092	845	875	1083
14:12:00	3.50	0.53	8.78	1.57	0.50	144.50	1600	909	1183	1118
14:16:00	0.00	0.55	9.22	1.57	0.50	176.60	1600	951	1183	1148
14:20:00	0.53	0.55	8.90	1.70	0.50	194.20	1569	946	1157	1117
14:24:00	0.52	0.57	9.65	1.85	0.50	184.10	1153	947	981	1117
14:28:00	1.91	0.61	9.87	1.85	0.50	178.60	1299	947	993	1117
14:32:00	1.86	0.67	9.87	1.85	0.50	178.60	1438	976	1073	1187
14:36:00	1.86	0.00	3.63	1.14	0.50	94.40	788	427	642	1041
14:40:00	1.86	0.00	1.43	0.00	0.50	62.60	773	374	591	965
14:44:00	1.82	0.00	0.01	0.00	0.31	17.00	886	434	617	1042
14:48:00	1.80	0.00	0.01	0.00	0.00	17.00	997	571	744	1042
14:52:00	1.87	0.00	0.01	0.00	0.00	17.00	1059	630	804	1042
14:56:00	1.87	0.00	0.01	0.00	0.00	17.00	1091	630	804	1014
15:00:00	1.79	0.00	0.01	0.00	0.00	17.00	1091	630	804	1014
15:04:00	1.79	0.00	0.01	0.00	0.00	17.00	1091	630	804	987
15:08:00	1.79	0.00	0.01	0.00	0.00	17.00	1091	630	804	958
15:12:00	0.24	0.00	0.01	0.00	0.00	17.00	1091	630	804	931
15:16:00	0.03	0.00	0.01	0.00	0.00	17.00	1091	630	804	904
15:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D100214.XLS

10/2/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	681	664	120	200	150.20	7.50	7.28	0	112	1
14:04:00	681	664	120	200	139.30	5.52	8.40	0	134	1
14:08:00	681	664	120	200	132.70	4.35	8.94	0	125	1
14:12:00	699	680	120	200	140.30	4.32	8.99	0	142	1
14:16:00	735	711	120	200	172.10	4.86	8.65	0	161	1
14:20:00	755	728	120	200	189.70	5.81	8.11	0	200	1
14:24:00	755	742	120	200	177.30	6.54	7.86	0	217	1
14:28:00	755	742	120	200	173.40	6.59	7.57	0	217	1
14:32:00	776	760	120	225	170.70	3.66	9.43	0	147	1
14:36:00	684	684	120	225	89.80	7.40	5.47	0	69	1
14:40:00	630	613	120	225	57.90	15.21	1.86	17	32	1
14:44:00	540	524	120	194	14.20	12.60	2.98	76	34	1
14:48:00	524	503	120	194	14.20	16.75	1.57	29	42	1
14:52:00	507	488	120	194	14.20	17.78	0.88	12	29	1
14:56:00	507	475	120	194	14.20	18.02	0.59	12	29	1
15:00:00	492	459	120	194	14.20	18.02	0.59	12	29	1
15:04:00	478	459	120	194	14.20	0.71	0.59	12	3	1
15:08:00	478	445	120	194	14.20	2.96	0.59	12	3	1
15:12:00	463	445	120	194	14.20	3.96	0.59	12	3	1
15:16:00	463	430	120	194	14.20	4.18	0.59	12	3	1
15:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D100308.XLS

10/3/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.17	3.38	0.92	0.45	18.60	498	352	490	495
8:04:00	0.00	0.28	3.57	0.92	0.47	18.60	525	352	520	529
8:08:00	0.00	0.31	5.41	0.92	0.50	22.00	673	379	595	658
8:12:00	0.00	0.38	6.90	1.27	0.50	24.90	786	414	703	772
8:16:00	0.00	0.43	9.18	1.39	0.50	32.50	817	479	830	904
8:20:00	0.00	0.52	11.32	1.95	0.50	40.30	949	534	946	1046
8:24:00	0.00	0.57	10.39	1.95	0.50	40.30	949	534	1014	1139
8:28:00	0.00	0.62	10.73	1.95	0.50	40.30	979	534	1128	1217
8:32:00	0.00	0.64	10.89	1.95	0.50	40.30	1006	563	1179	1281
8:36:00	0.00	0.60	10.37	1.95	0.50	40.30	1243	600	1271	1314
8:40:00	0.00	0.56	10.32	1.95	0.50	49.40	1506	634	1304	1319
8:44:00	0.04	0.55	10.23	1.95	0.50	66.10	1599	670	1336	1274
8:48:00	0.00	0.52	10.10	1.95	0.50	72.40	1564	701	1278	1239
8:52:00	0.00	0.54	10.34	1.95	0.50	75.00	1520	701	1246	1239
8:56:00	0.00	0.50	9.46	1.79	0.50	75.00	1360	692	1119	1096
9:00:00	0.00	0.54	9.24	1.79	0.50	75.00	1390	692	1153	1122
9:04:00	0.00	0.51	8.89	1.79	0.50	75.00	1250	690	1080	1025
9:08:00	0.00	0.55	8.68	1.67	0.50	75.00	1318	690	1109	1061
9:12:00	0.00	0.29	8.51	1.67	0.50	71.20	1047	645	989	955
9:16:00	0.00	0.44	8.76	1.67	0.50	71.20	1037	672	1025	1047
9:20:00	0.00	0.45	8.65	1.67	0.50	71.20	1059	672	1090	1080
9:24:00	0.00	0.45	8.61	1.67	0.50	71.20	1101	703	1120	1115
9:28:00	0.00	0.46	8.39	1.56	0.50	71.20	1101	703	1115	1146
9:32:00	0.00	0.48	8.96	1.56	0.50	71.20	1251	742	1198	1146
9:36:00	0.00	0.49	9.29	1.70	0.50	74.20	1216	742	1198	1181
9:40:00	0.00	0.49	9.26	1.70	0.50	74.20	1165	742	1198	1181
9:44:00	0.00	0.49	9.26	1.70	0.50	77.10	1178	742	1205	1181
9:48:00	0.00	0.00	9.64	1.70	0.50	77.10	1093	742	1121	1181
9:52:00	0.00	0.49	9.84	1.80	0.50	89.50	1363	795	1189	1127
9:56:00	0.00	0.57	9.84	1.80	0.50	110.30	1341	795	1085	1067
10:00:00	0.01	0.65	9.86	1.85	0.50	115.90	1241	839	1105	1102

D100308.XLS

10/3/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	265	245	106	141	14.00	2.47	9.48	1000	56	13
8:04:00	265	245	106	141	14.00	4.62	8.79	247	69	13
8:08:00	295	260	106	141	14.00	3.18	9.92	71	69	13
8:12:00	312	278	106	141	14.00	4.18	8.84	17	100	13
8:16:00	346	316	106	141	14.00	4.30	8.94	5	100	13
8:20:00	372	341	106	141	14.00	4.49	8.94	5	10[illegible]	13
8:24:00	401	372	106	141	14.00	3.83	9.67	5	83	13
8:28:00	415	387	106	141	14.00	2.76	10.40	5	83	13
8:32:00	415	400	106	141	14.00	2.71	10.16	5	103	13
8:36:00	428	400	106	141	19.40	2.93	9.82	5	103	13
8:40:00	460	429	106	141	34.50	2.93	9.82	5	103	13
8:44:00	495	471	106	141	56.30	3.13	9.57	5	112	13
8:48:00	530	491	106	141	59.80	3.47	9.67	5	127	13
8:52:00	547	510	106	141	63.00	4.23	9.38	5	115	13
8:56:00	531	509	106	141	63.00	11.77	4.98	5	81	13
9:00:00	531	509	106	141	65.70	6.69	7.67	5	144	13
9:04:00	531	509	106	141	65.90	11.62	5.08	5	90	13
9:08:00	531	509	106	141	65.90	6.47	7.67	5	178	13
9:12:00	518	493	106	141	62.40	14.89	3.03	42	47	13
9:16:00	518	493	106	141	62.40	6.47	7.96	10	154	13
9:20:00	533	509	106	167	59.80	6.23	8.21	10	169	13
9:24:00	533	509	106	167	59.80	6.01	8.21	10	181	13
9:28:00	549	523	106	167	59.80	6.01	8.21	10	169	13
9:32:00	549	523	106	167	59.80	6.28	8.21	10	191	13
9:36:00	565	536	106	167	63.30	6.59	7.86	10	227	13
9:40:00	565	536	106	167	63.30	6.79	7.86	10	278	13
9:44:00	578	549	106	167	65.90	6.91	7.86	10	259	13
9:48:00	578	549	106	167	65.90	6.84	7.86	10	286	13
9:52:00	578	549	106	167	82.80	7.72	7.43	10	191	13
9:56:00	612	567	106	167	102.80	13.14	2.59	10	71	13
10:00:00	630	611	118	187	108.10	6.28	7.96	0	266	25

D100310.XLS

10/3/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.01	0.65	9.86	1.85	0.50	115.90	1241	839	1105	1102
10:04:00	2.84	0.66	9.86	1.85	0.51	115.90	1164	839	1105	1142
10:08:00	0.00	0.60	4.73	1.17	0.51	97.70	853	469	693	1283
10:12:00	3.01	0.00	5.61	1.42	0.51	72.10	759	587	888	1186
10:16:00	3.05	0.00	8.13	1.38	0.49	26.50	799	450	789	1055
10:20:00	3.06	0.00	0.01	0.00	0.40	17.30	780	425	604	999
10:24:00	3.02	0.00	0.01	0.00	0.40	17.30	854	522	716	971
10:28:00	3.04	0.00	0.01	0.00	0.40	17.30	854	550	716	939
10:32:00	3.03	0.00	0.01	0.00	0.40	17.30	854	550	716	910
10:36:00	2.95	0.00	0.01	0.00	0.40	17.30	854	524	716	879
10:40:00	2.95	0.00	0.01	0.00	0.39	17.30	854	524	716	879
10:44:00	3.00	0.00	0.01	0.00	0.32	17.30	896	553	744	849
10:48:00	2.95	0.00	0.01	0.00	0.00	17.30	896	553	744	793
10:52:00	2.90	0.00	0.01	0.00	0.00	17.30	896	527	710	614
10:56:00	2.96	0.00	0.01	0.00	0.00	17.30	896	527	710	586
11:00:00	2.96	0.00	0.01	0.00	0.00	17.30	896	527	710	556
11:04:00	3.01	0.00	0.01	0.00	0.00	17.30	896	527	710	530
11:08:00	2.91	0.00	0.01	0.00	0.00	17.30	896	527	710	530
11:12:00	2.98	0.00	0.01	0.00	0.00	17.30	896	527	710	502
11:16:00	2.96	0.00	0.01	0.00	0.00	17.30	896	527	710	473
11:20:00	2.98	0.00	0.01	0.00	0.00	17.30	896	527	710	473
11:24:00	2.91	0.00	0.01	0.00	0.00	17.30	870	527	710	444
11:28:00	2.54	0.00	0.01	0.00	0.00	17.30	870	527	710	418
11:32:00	0.00	0.00	0.01	0.00	0.00	17.30	870	527	710	418
11:36:00	0.00	0.00	0.01	0.00	0.00	17.30	870	527	710	392
11:40:00	0.00	0.00	0.01	0.00	0.00	17.30	870	527	710	392
11:44:00	0.00	0.00	0.01	0.00	0.00	17.30	870	527	710	392
11:48:00	0.00	0.00	0.01	0.00	0.00	17.30	870	527	710	366
11:52:00	0.00	0.00	0.01	0.00	0.00	17.30	845	527	710	366
11:56:00	0.00	0.00	0.01	0.00	0.00	17.30	845	501	710	366
12:00:00	0.00	0.00	0.01	0.00	0.00	15.50	802	500	701	333

D100310.XLS

10/3/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	630	611	118	187	108.10	6.28	7.96	0	266	25
10:04:00	645	628	118	187	108.10	5.13	8.74	0	176	25
10:08:00	661	643	118	187	91.00	3.40	10.16	100	78	25
10:12:00	592	591	118	187	69.20	5.76	5.86	1000	32	25
10:16:00	515	505	118	187	15.70	15.85	1.61	164	20	25
10:20:00	460	452	118	187	15.70	14.85	2.25	193	42	25
10:24:00	446	437	118	187	15.70	15.63	1.96	225	42	25
10:28:00	431	418	118	187	15.70	15.53	1.61	213	29	25
10:32:00	431	418	118	187	15.70	15.09	1.61	213	10	25
10:36:00	416	404	118	187	15.70	15.09	1.61	213	10	25
10:40:00	416	404	118	187	15.70	15.09	1.61	213	10	25
10:44:00	400	390	118	187	15.70	14.87	1.61	213	10	25
10:48:00	400	390	118	187	15.70	14.87	1.61	213	10	25
10:52:00	400	376	118	187	15.70	14.87	1.61	213	10	25
10:56:00	385	376	118	187	15.70	14.87	1.61	213	10	25
11:00:00	385	376	118	187	15.70	14.87	1.61	213	10	25
11:04:00	385	376	118	187	15.70	14.87	1.61	213	10	25
11:08:00	385	376	118	187	15.70	14.87	1.61	213	10	25
11:12:00	385	362	118	162	15.70	14.87	1.61	213	10	25
11:16:00	371	362	118	162	15.70	14.87	1.61	213	10	25
11:20:00	371	362	118	162	15.70	14.87	1.61	213	10	25
11:24:00	371	362	118	162	15.70	14.87	1.61	213	10	25
11:28:00	371	362	118	162	15.70	14.87	1.61	213	10	25
11:32:00	371	348	118	162	15.70	14.87	1.61	213	10	25
11:36:00	371	348	118	162	15.70	14.87	1.61	213	10	25
11:40:00	371	348	118	162	15.70	14.87	1.61	213	10	25
11:44:00	357	348	118	162	15.70	14.87	1.61	213	10	25
11:48:00	357	348	118	162	15.70	14.87	1.61	213	10	25
11:52:00	357	348	118	162	15.70	14.87	1.61	213	10	25
11:56:00	357	348	118	162	15.70	15.09	1.61	213	10	25
12:00:00	349	333	110	152	13.70	15.09	1.61	215	0	25

D100312.XLS

10/3/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.00	0.01	0.00	0.00	15.50	802	500	701	333
12:04:00	0.00	0.00	0.01	0.00	0.00	15.50	802	500	701	333
12:08:00	0.00	0.00	0.01	0.00	0.00	15.50	802	500	701	333
12:12:00	0.00	0.00	0.01	0.00	0.00	15.50	776	500	701	333
12:16:00	0.00	0.00	0.01	0.00	0.00	15.50	776	500	701	306
12:20:00	0.00	0.00	0.01	0.00	0.00	15.50	776	500	701	306
12:24:00	0.00	0.00	0.01	0.00	0.00	15.50	776	500	701	306
12:28:00	0.00	0.00	9.95	2.12	0.00	34.30	619	474	539	516
12:32:00	0.00	0.00	10.20	1.86	0.00	70.50	515	471	504	425
12:36:00	0.00	0.00	10.65	1.86	0.41	34.00	630	398	504	425
12:40:00	0.00	0.00	10.29	1.86	0.39	31.10	591	440	460	399
12:44:00	0.00	0.00	0.01	0.00	0.00	15.50	680	374	552	399
12:48:00	0.00	0.00	0.01	0.00	0.00	15.50	680	403	552	358
12:52:00	0.00	0.00	0.01	0.00	0.00	15.50	680	403	552	329
12:56:00	0.00	0.00	0.01	0.00	0.00	15.50	680	403	552	304
13:00:00	0.00	0.00	0.01	0.00	0.00	15.50	714	439	626	304
13:04:00	0.00	0.00	0.01	0.00	0.00	15.50	714	465	626	277
13:08:00	0.00	0.00	0.01	0.00	0.00	15.50	714	465	626	277
13:12:00	0.00	0.00	0.01	0.00	0.00	15.50	714	465	626	277
13:16:00	0.00	0.00	0.01	0.00	0.00	15.50	714	465	626	250
13:20:00	0.00	0.00	0.01	0.00	0.00	15.50	714	465	626	250
13:24:00	0.00	0.00	3.06	0.77	0.00	18.80	703	437	621	506
13:28:00	0.00	0.00	4.98	1.25	0.00	19.20	643	437	565	496
13:32:00	0.00	0.00	5.24	0.99	0.00	19.20	643	437	539	471
13:36:00	0.00	0.00	5.08	0.99	0.00	19.20	643	437	539	443
13:40:00	0.00	0.00	5.08	0.99	0.00	19.20	643	437	509	443
13:44:00	0.00	0.00	5.08	0.99	0.00	19.20	617	437	509	418
13:48:00	0.00	0.00	5.12	0.99	0.00	19.20	617	437	509	418
13:52:00	0.00	0.00	5.27	0.99	0.00	19.20	617	437	479	418
13:56:00	0.00	0.00	5.11	0.99	0.00	19.20	592	437	479	392
14:00:00	0.00	0.00	5.25	0.91	0.00	19.50	578	436	462	380

D100312.XLS

10/3/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:04:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:08:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:12:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:16:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:20:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:24:00	349	333	110	152	13.70	15.09	1.61	215	0	25
12:28:00	349	333	110	152	13.70	17.17	0.34	47	17	25
12:32:00	369	355	110	152	56.10	17.92	0.05	3	5	25
12:36:00	339	340	110	152	16.30	17.92	0.05	3	5	25
12:40:00	339	340	110	152	16.30	17.92	0.05	3	5	25
12:44:00	320	325	110	152	13.70	17.19	0.44	3	20	25
12:48:00	320	325	110	152	13.70	16.95	0.44	15	37	25
12:52:00	320	309	110	152	13.70	17.29	0.20	15	37	25
12:56:00	320	309	110	152	13.70	17.58	0.20	15	25	25
13:00:00	320	309	110	152	13.70	17.58	0.20	3	25	25
13:04:00	320	309	110	152	13.70	17.58	0.20	3	3	25
13:08:00	320	309	110	152	13.70	17.58	0.20	3	3	25
13:12:00	320	309	110	152	13.70	17.58	0.20	3	3	25
13:16:00	320	309	110	152	13.70	17.58	0.20	3	3	25
13:20:00	320	309	110	152	13.70	17.36	0.20	3	3	25
13:24:00	320	309	110	152	13.70	17.36	0.20	3	3	25
13:28:00	320	309	110	152	13.70	17.36	0.20	3	3	25
13:32:00	320	309	110	152	13.70	17.36	0.20	3	3	25
13:36:00	320	309	110	152	13.70	17.36	0.20	3	3	25
13:40:00	320	296	110	152	13.70	17.36	0.20	3	3	25
13:44:00	307	296	110	152	13.70	17.36	0.20	3	3	25
13:48:00	307	296	110	152	13.70	17.36	0.20	3	3	25
13:52:00	307	296	110	152	13.70	17.36	0.20	3	3	25
13:56:00	307	296	110	152	13.70	17.36	0.20	3	3	25
14:00:00	302	293	110	147	14.10	17.34	0.15	5	3	25

D100314.XLS

10/3/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.00	0.00	5.25	0.91	0.00	19.50	578	436	462	380
14:04:00	0.00	0.00	5.25	0.91	0.00	19.50	578	436	462	380
14:08:00	0.00	0.00	5.25	0.91	0.00	19.50	578	436	462	380
14:12:00	0.00	0.00	5.25	0.91	0.00	19.50	578	436	462	380
14:16:00	0.00	0.00	5.25	0.91	0.00	19.50	553	436	462	380
14:20:00	0.00	0.00	5.25	0.91	0.00	19.50	553	436	436	380
14:24:00	0.00	0.00	5.25	0.91	0.00	19.50	553	436	436	380
14:28:00	0.00	0.00	5.06	0.91	0.00	19.50	553	436	436	354
14:32:00	0.00	0.00	5.24	0.91	0.00	19.50	527	436	436	354
14:36:00	0.00	0.00	5.24	0.91	0.00	19.50	527	436	436	354
14:40:00	0.00	0.00	0.01	0.00	0.00	15.70	600	425	531	322
14:44:00	0.00	0.00	0.01	0.00	0.00	15.70	600	425	531	294
14:48:00	0.00	0.00	5.11	0.00	0.00	15.70	600	425	531	404
14:52:00	0.00	0.00	5.11	0.95	0.00	15.70	519	425	470	378
14:56:00	0.00	0.00	5.11	0.95	0.00	18.60	519	425	430	352
15:00:00	0.00	0.00	5.29	0.95	0.00	18.60	519	425	430	352
15:04:00	0.00	0.00	5.29	0.95	0.00	18.60	492	425	401	352
15:08:00	0.00	0.00	5.29	0.95	0.00	18.60	492	425	401	352
15:12:00	0.00	0.00	0.01	0.00	0.00	15.50	543	391	509	316
15:16:00	0.00	0.00	4.91	1.22	0.00	18.80	492	416	427	361
15:20:00	0.00	0.00	5.17	1.05	0.00	18.80	492	416	401	333
15:24:00	0.00	0.00	3.38	0.00	0.00	18.80	519	416	438	333
15:28:00	0.00	0.00	2.99	0.00	0.00	18.80	519	416	438	333
15:32:00	0.00	0.00	4.04	0.00	0.00	18.80	519	416	438	333
15:36:00	0.00	0.00	6.05	0.00	0.00	18.80	475	416	409	333
15:40:00	0.00	0.00	0.01	3.04	0.00	21.40	437	391	355	307
15:44:00	0.00	0.00	0.01	3.08	0.00	23.30	435	391	310	307
15:48:00	0.00	0.00	3.12	2.95	0.00	23.30	406	391	310	279
15:52:00	0.00	0.00	2.97	1.21	0.00	23.30	410	391	353	279
15:56:00	0.00	0.00	2.97	1.41	0.00	18.50	435	393	353	279
16:00:00	0.00	0.00	7.35	0.00	0.00	24.00	375	392	300	275

D100314.XLS

10/3/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:04:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:08:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:12:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:16:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:20:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:24:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:28:00	302	293	110	147	14.10	17.34	0.15	5	3	25
14:32:00	302	280	110	147	14.10	17.34	0.15	5	3	25
14:36:00	288	280	110	147	14.10	17.34	0.15	5	3	25
14:40:00	288	280	110	147	14.10	17.34	0.15	5	3	25
14:44:00	288	280	110	147	14.10	17.34	0.15	5	3	25
14:48:00	288	280	110	147	14.10	17.34	0.15	5	3	25
14:52:00	288	280	110	147	14.10	17.34	0.15	5	3	25
14:56:00	288	280	110	147	14.10	17.34	0.15	5	3	25
15:00:00	288	280	110	147	14.10	17.34	0.15	5	3	25
15:04:00	288	280	110	147	14.10	17.34	0.15	5	3	25
15:08:00	288	280	110	147	14.10	17.34	0.15	5	3	25
15:12:00	288	264	110	147	14.10	17.34	0.15	5	3	25
15:16:00	288	264	110	147	14.10	17.34	0.15	5	3	25
15:20:00	288	264	110	147	14.10	15.69	0.15	5	423	25
15:24:00	274	264	110	147	14.10	15.69	0.15	5	506	25
15:28:00	274	264	110	147	14.10	18.80	0.15	5	955	25
15:32:00	274	264	110	147	14.10	18.80	0.15	5	960	25
15:36:00	274	264	110	147	14.10	18.80	0.15	5	576	25
15:40:00	274	264	110	147	14.10	18.80	0.15	5	132	25
15:44:00	274	264	110	147	14.10	18.80	0.15	5	205	25
15:48:00	274	264	110	147	14.10	18.80	0.15	5	420	25
15:52:00	274	264	110	147	14.10	18.80	0.15	5	305	25
15:56:00	274	264	110	147	14.10	18.80	0.15	5	623	25
16:00:00	274	261	109	149	14.40	18.93	0.00	0	506	13

D100316.XLS

10/3/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	0.00	7.35	0.00	0.00	24.00	375	392	300	275
16:04:00	0.00	0.00	8.55	0.00	0.00	21.40	434	392	326	275
16:08:00	0.00	0.00	2.98	0.00	1.31	18.60	434	392	364	275
16:12:00	0.00	0.00	4.17	0.00	0.00	18.60	434	392	364	275
16:16:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:20:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:24:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:28:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:32:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:36:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:40:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:44:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:48:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:52:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
16:56:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
17:00:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
17:04:00	0.00	0.00	4.00	0.00	0.00	18.60	434	392	364	275
17:08:00	0.00	0.00	4.00	0.00	0.00	16.00	434	392	398	275
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D100316.XLS

10/3/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	274	261	109	149	14.40	18.93	0.00	0	506	13
16:04:00	274	261	109	149	14.40	18.93	0.00	0	476	13
16:08:00	274	261	109	149	14.40	18.93	0.00	0	803	13
16:12:00	274	261	109	149	14.40	18.93	0.00	0	137	13
16:16:00	274	261	109	149	14.40	18.93	0.00	0	61	13
16:20:00	274	261	109	149	14.40	18.93	0.00	0	64	13
16:24:00	274	261	109	149	14.40	18.93	0.00	0	64	13
16:28:00	274	261	109	149	14.40	18.93	0.00	0	51	13
16:32:00	274	261	109	149	14.40	18.93	0.00	0	51	13
16:36:00	274	261	109	149	14.40	18.93	0.00	0	51	13
16:40:00	274	261	109	149	14.40	18.93	0.00	0	39	13
16:44:00	260	261	109	149	14.40	18.93	0.00	0	39	13
16:48:00	260	261	109	149	14.40	18.93	0.00	0	39	13
16:52:00	260	261	109	149	14.40	18.93	0.00	0	39	13
16:56:00	260	261	109	149	14.40	18.93	0.00	0	27	13
17:00:00	260	247	109	149	14.40	18.93	0.00	0	27	13
17:04:00	260	247	109	149	14.40	18.93	0.00	0	27	13
17:08:00	260	247	109	149	14.40	18.93	0.00	0	27	13
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D100410.XLS

10/4/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:32:00	0.00	0.00	0.00	0.00	0.00	16.00	223	211	230	70
10:36:00	0.00	0.00	0.00	0.00	0.00	16.00	223	211	230	70
10:40:00	0.00	0.00	3.07	0.00	0.00	16.00	223	211	230	199
10:44:00	0.00	0.16	3.03	0.00	0.00	16.00	223	211	230	229
10:48:00	0.00	0.17	3.03	0.00	0.00	16.00	223	211	230	229
10:52:00	0.00	0.22	5.21	0.00	0.00	16.00	251	211	256	258
10:56:00	0.00	0.25	6.82	0.00	0.00	16.00	277	211	285	284
11:00:00	0.00	0.35	6.82	0.00	0.00	16.00	277	211	285	314
11:04:00	0.00	0.27	7.62	0.00	0.49	16.00	341	238	312	339
11:08:00	0.00	0.33	8.85	0.00	0.49	22.70	417	269	368	378
11:12:00	0.00	0.65	9.59	0.00	0.51	29.60	510	302	396	378
11:16:00	0.00	0.46	10.99	0.00	0.51	35.20	551	302	422	432
11:20:00	0.00	0.45	11.54	0.00	0.50	38.00	614	335	453	466
11:24:00	0.00	0.85	10.24	2.64	0.49	41.20	679	364	479	499
11:28:00	0.00	0.54	10.84	2.79	0.49	41.20	711	392	544	535
11:32:00	0.00	0.59	10.64	2.79	0.49	44.30	743	392	544	562
11:36:00	0.00	0.65	10.65	2.79	0.49	44.30	770	424	576	588
11:40:00	0.00	0.57	10.65	2.79	0.49	44.30	798	424	611	588
11:44:00	0.00	0.76	10.65	2.79	0.49	44.30	798	424	611	618
11:48:00	0.00	0.55	10.61	2.79	0.49	44.30	832	424	638	644
11:52:00	0.00	0.67	10.94	2.79	0.51	44.30	866	455	638	644
11:56:00	0.00	0.53	10.74	2.79	0.51	44.30	866	455	665	669
12:00:00	0.00	0.59	10.28	2.76	0.51	46.00	904	473	693	690

D100410.XLS

10/4/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:28:00	-4	-4	-148	-148	0.00	2.98	14.99	296	42	2491
10:32:00	175	169	82	102	13.80	2.98	14.99	296	54	2491
10:36:00	175	169	82	102	13.80	18.24	0.00	0	17	13
10:40:00	175	169	82	102	13.80	18.24	0.00	0	5	13
10:44:00	161	156	82	102	13.80	16.19	2.15	1000	5	13
10:48:00	161	156	82	102	13.80	6.03	6.64	1000	69	13
10:52:00	161	156	82	102	13.80	3.20	8.94	1000	81	13
10:56:00	178	172	82	102	13.80	4.66	8.45	899	81	13
11:00:00	178	172	82	102	13.80	5.13	8.45	376	81	13
11:04:00	192	172	82	102	13.80	3.91	8.99	176	120	13
11:08:00	208	186	82	102	17.80	5.32	8.40	66	90	13
11:12:00	242	204	82	102	24.90	4.54	8.89	34	130	13
11:16:00	257	238	82	102	30.40	4.59	8.99	22	147	13
11:20:00	273	256	82	102	33.30	4.59	8.74	22	134	13
11:24:00	305	273	82	102	36.20	3.93	9.43	10	134	13
11:28:00	322	287	82	102	38.90	1.76	10.55	139	117	13
11:32:00	336	303	82	102	38.90	3.20	9.67	25	142	13
11:36:00	336	321	82	102	41.60	3.03	9.67	10	142	13
11:40:00	349	321	82	102	41.60	3.30	9.92	10	154	13
11:44:00	362	334	82	102	41.60	2.91	9.96	10	154	13
11:48:00	362	334	82	102	41.60	2.91	10.06	10	154	13
11:52:00	362	350	82	102	41.60	2.91	10.06	10	154	13
11:56:00	375	350	82	102	41.60	2.44	10.06	10	142	13
12:00:00	384	355	88	120	41.50	2.86	9.92	3	147	13

D100412.XLS

10/4/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.59	10.28	2.76	0.51	46.00	904	473	693	690
12:04:00	0.00	0.57	10.66	2.76	0.49	46.00	904	473	693	690
12:08:00	0.00	0.57	10.63	2.76	0.49	46.00	936	473	723	690
12:12:00	0.00	0.74	10.56	2.76	0.51	46.00	936	473	749	722
12:16:00	0.00	0.56	10.76	2.76	0.51	46.00	936	473	749	722
12:20:00	0.00	0.78	10.78	2.76	0.49	46.00	971	500	775	751
12:24:00	0.00	0.54	10.61	2.76	0.47	46.00	971	500	775	751
12:28:00	0.00	0.61	10.84	2.76	0.00	46.00	971	500	775	751
12:32:00	0.00	0.53	10.89	2.76	0.00	46.00	971	500	775	751
12:36:00	0.00	0.58	10.82	2.76	0.50	46.00	1047	500	826	786
12:40:00	0.00	0.71	10.81	2.76	0.53	46.00	1047	500	826	786
12:44:00	0.00	0.57	10.64	2.76	0.51	46.00	1047	500	826	786
12:48:00	0.00	0.77	10.77	2.76	0.51	46.00	1047	526	826	786
12:52:00	0.00	0.56	10.44	2.76	0.51	46.00	1047	526	826	812
12:56:00	0.00	0.82	10.76	2.76	0.49	46.00	1075	526	856	812
13:00:00	0.00	0.55	10.52	2.76	0.49	46.00	1075	526	856	812
13:04:00	0.00	0.61	10.57	2.76	0.39	46.00	1075	526	856	812
13:08:00	0.00	0.54	10.64	2.76	0.39	46.00	1075	526	885	844
13:12:00	0.00	0.59	10.96	2.76	0.39	46.00	1110	526	885	844
13:16:00	0.00	0.69	10.77	2.76	0.39	46.00	1110	526	885	844
13:20:00	0.00	0.58	10.59	2.76	0.40	46.00	1110	526	926	873
13:24:00	0.00	0.77	10.77	2.76	0.40	46.00	1110	552	897	873
13:28:00	0.00	0.57	10.62	2.76	0.40	46.00	1135	552	933	873
13:32:00	0.00	0.83	10.86	2.76	0.40	24.00	744	337	803	971
13:36:00	0.00	0.56	10.54	2.76	0.40	24.00	1067	506	892	1035
13:40:00	0.00	0.83	10.86	2.76	0.40	27.30	1211	532	918	1035
13:44:00	0.00	0.55	10.64	2.76	0.40	29.90	1211	532	918	999
13:48:00	0.00	0.68	10.73	2.76	0.40	29.90	1183	532	918	999
13:52:00	0.00	0.55	10.73	2.76	0.39	29.90	1183	532	918	999
13:56:00	0.00	0.62	10.73	2.76	0.39	29.90	1183	532	918	999
14:00:00	3.08	0.54	10.91	2.78	0.40	32.10	1182	541	935	1009

D100412.XLS

10/4/91 12:00										
TIME	COiL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	384	355	88	120	41.50	2.86	9.92	3	147	13
12:04:00	384	355	88	120	41.50	2.27	10.26	3	147	13
12:08:00	384	368	88	120	41.50	2.81	10.31	3	147	13
12:12:00	384	368	88	120	41.50	2.76	10.26	3	147	13
12:16:00	398	368	88	120	41.50	2.76	10.31	3	147	13
12:20:00	398	368	88	120	41.50	2.30	10.11	3	147	13
12:24:00	398	383	88	120	41.50	2.25	10.50	3	147	13
12:28:00	398	383	88	120	41.50	2.61	10.21	3	147	13
12:32:00	398	383	88	120	41.50	1.37	10.94	3	147	13
12:36:00	411	383	88	120	41.50	2.61	10.21	7	147	13
12:40:00	411	383	88	120	41.50	2.66	10.01	7	137	13
12:44:00	411	397	88	120	41.50	2.39	10.11	7	137	13
12:48:00	411	397	88	120	41.50	2.39	10.55	7	137	13
12:52:00	425	397	88	120	41.50	2.39	10.55	7	137	13
12:56:00	425	397	88	120	41.50	2.37	10.26	7	137	13
13:00:00	425	410	88	120	41.50	2.15	10.55	7	137	13
13:04:00	425	410	88	120	41.50	2.57	10.16	7	137	13
13:08:00	425	410	88	120	41.50	1.83	10.60	7	137	13
13:12:00	425	410	88	120	41.50	2.37	10.35	7	137	13
13:16:00	438	410	88	120	41.50	1.86	10.65	7	137	13
13:20:00	438	410	88	120	41.50	2.37	10.50	7	125	13
13:24:00	438	423	88	120	41.50	2.05	10.50	7	112	13
13:28:00	438	423	88	120	41.50	2.15	10.40	7	127	13
13:32:00	412	408	88	120	14.70	2.83	9.18	27	112	13
13:36:00	397	371	88	120	14.70	1.81	10.75	10	125	13
13:40:00	397	371	88	120	22.30	2.37	10.26	10	134	13
13:44:00	397	371	88	120	25.20	1.76	10.79	10	134	13
13:48:00	415	389	88	120	25.20	2.52	10.21	10	134	13
13:52:00	415	389	88	120	25.20	1.83	10.75	10	134	13
13:56:00	415	389	88	120	25.20	2.66	10.21	10	134	13
14:00:00	416	389	93	142	26.70	1.95	10.60	0	127	25

D100414.XLS

10/4/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	3.08	0.54	10.91	2.78	0.40	32.10	1182	541	935	1009
14:04:00	3.07	0.59	10.69	2.78	0.40	32.10	1208	541	935	1009
14:08:00	0.58	0.62	10.69	2.78	0.40	32.10	1208	541	935	1038
14:12:00	0.76	0.58	10.69	2.78	0.41	32.10	1211	541	962	1038
14:16:00	0.76	0.74	10.69	2.78	0.39	39.00	1304	572	992	1004
14:20:00	0.52	0.57	10.66	2.78	0.39	47.50	1304	572	1040	948
14:24:00	0.52	0.77	10.72	2.78	0.41	73.90	1309	607	989	881
14:28:00	0.36	0.56	10.91	2.78	0.41	92.30	1269	635	913	819
14:32:00	0.47	0.78	10.76	2.78	0.48	82.90	1199	614	875	819
14:36:00	0.42	0.56	10.56	2.78	0.48	86.00	1199	614	875	819
14:40:00	0.43	0.82	10.55	2.78	0.50	82.50	1086	586	829	819
14:44:00	0.34	0.56	10.55	2.78	0.50	79.60	1112	586	829	819
14:48:00	0.29	0.85	10.52	2.78	0.50	79.60	1070	586	829	819
14:52:00	0.38	0.55	10.60	2.78	0.50	76.60	1101	586	863	819
14:56:00	0.33	0.70	10.45	2.78	0.50	76.60	1071	586	863	819
15:00:00	0.47	0.55	10.63	2.78	0.50	76.60	1110	621	863	819
15:04:00	0.30	0.65	10.77	2.78	0.50	76.60	1110	621	863	819
15:08:00	0.44	0.54	10.77	2.78	0.50	76.60	1110	621	863	819
15:12:00	0.20	0.63	10.78	2.78	0.50	76.60	1110	621	863	819
15:16:00	0.30	0.54	10.59	2.78	0.52	76.60	1110	621	863	819
15:20:00	0.24	0.61	10.63	2.78	0.50	76.60	1110	621	863	819
15:24:00	0.43	0.54	10.63	2.78	0.50	76.60	1110	621	863	819
15:28:00	0.20	0.60	10.63	2.78	0.56	76.60	1157	621	876	819
15:32:00	0.30	0.54	10.64	2.78	0.51	111.50	1208	673	876	819
15:36:00	0.25	0.61	10.61	2.78	0.49	140.10	1149	724	846	792
15:40:00	2.35	0.00	3.75	0.00	0.40	106.20	801	408	597	710
15:44:00	2.41	0.00	0.01	0.00	0.00	16.60	775	324	492	741
15:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
15:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D100414.XLS

10/4/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	416	389	93	142	26.70	1.95	10.60	0	127	25
14:04:00	416	389	93	142	26.70	2.59	10.45	0	127	25
14:08:00	416	389	93	142	26.70	2.05	10.75	0	110	25
14:12:00	416	389	93	142	26.70	2.15	10.60	0	64	25
14:16:00	430	407	93	142	35.00	1.88	10.55	0	78	25
14:20:00	446	423	93	142	44.30	2.2[illegible]	10.70	0	78	25
14:24:00	489	465	93	142	71.20	2.03	10.75	0	78	25
14:28:00	523	493	93	142	89.50	2.30	10.45	0	78	25
14:32:00	523	507	93	142	81.80	2.35	10.35	0	78	25
14:36:00	523	507	93	142	84.70	2.35	10.35	0	78	25
14:40:00	523	507	93	142	79.10	2.35	10.35	0	78	25
14:44:00	523	507	93	142	76.10	2.35	10.35	0	78	25
14:48:00	523	507	93	142	76.10	2.35	10.35	0	78	25
14:52:00	523	507	93	142	73.40	2.22	10.35	0	78	25
14:56:00	523	507	93	167	73.40	2.52	10.35	0	78	25
15:00:00	523	507	93	167	73.40	2.25	10.35	0	78	25
15:04:00	523	507	93	167	73.40	2.69	10.35	0	78	25
15:08:00	523	507	93	167	73.40	2.25	10.35	0	78	25
15:12:00	523	507	93	167	73.40	2.57	10.35	0	78	25
15:16:00	523	520	93	167	73.40	2.13	10.60	0	78	25
15:20:00	537	520	93	167	73.40	2.64	10.31	0	90	25
15:24:00	537	520	93	167	73.40	2.10	10.65	0	78	25
15:28:00	537	520	93	167	73.40	2.37	10.35	0	78	25
15:32:00	570	553	93	167	108.90	2.37	10.50	0	78	25
15:36:00	584	567	93	193	137.40	2.37	10.50	0	78	25
15:40:00	540	546	93	193	99.90	7.64	6.94	15	51	25
15:44:00	433	449	93	161	14.40	4.47	6.94	100	39	25
15:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
15:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

[redacted]

D101508.XLS

10/15/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:36:00	0.34	0.26	3.01	0.00	0.00	16.60	82	82	93	104
8:40:00	0.34	0.28	5.00	2.62	0.00	16.60	82	82	93	133
8:44:00	0.34	0.00	3.07	0.00	0.00	16.60	111	82	124	163
8:48:00	0.34	0.17	4.11	0.00	0.71	16.60	111	82	124	163
8:52:00	0.34	0.19	4.99	0.00	0.50	16.60	111	82	124	163
8:56:00	0.34	0.18	4.99	0.00	0.50	16.60	111	82	124	163
9:00:00	0.35	0.19	4.99	0.00	0.50	16.60	111	82	124	163
9:04:00	0.32	0.34	4.99	0.00	0.50	16.60	111	108	149	191
9:08:00	0.38	0.30	5.70	0.00	0.50	16.60	111	108	175	220
9:12:00	0.27	0.30	7.01	0.00	0.50	16.60	139	108	203	250
9:16:00	0.32	0.30	7.44	0.00	0.50	16.60	139	108	231	287
9:20:00	0.27	0.49	9.47	0.00	0.50	19.30	139	108	231	355
9:24:00	0.36	0.49	10.42	0.00	0.50	19.30	285	134	258	392
9:28:00	0.37	0.43	9.27	2.23	0.50	22.40	317	134	287	425
9:32:00	0.37	0.41	8.29	2.23	0.50	22.40	348	134	287	455
9:36:00	0.27	0.41	8.29	2.23	0.50	22.40	375	134	287	483
9:40:00	0.27	0.52	8.82	2.23	0.50	22.40	490	134	316	483
9:44:00	0.29	0.44	8.82	2.23	0.50	22.40	490	134	351	483
9:48:00	0.36	0.42	8.82	2.23	0.50	22.40	462	134	351	509
9:52:00	0.26	0.58	8.82	2.23	0.50	22.40	495	174	351	537
9:56:00	0.29	0.45	8.82	2.23	0.50	22.40	522	207	380	562
10:00:00	0.37	0.42	8.87	2.35	0.50	23.60	556	225	396	577

D101508.XLS

10/15/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:36:00	88	82	68	72	14.00	16.30	5.57	188	42	13
8:40:00	101	82	68	72	14.00	9.83	7.96	332	76	13
8:44:00	115	97	68	72	14.00	20.08	3.42	1000	34	13
8:48:00	115	97	68	72	14.00	16.61	5.91	1000	64	13
8:52:00	115	111	68	72	14.00	18.80	5.67	491	90	13
8:56:00	115	111	68	72	14.00	20.15	5.67	200	108	13
9:00:00	129	111	68	72	14.00	8.01	5.42	100	120	13
9:04:00	129	125	68	72	14.00	6.69	6.84	73	149	13
9:08:00	146	125	68	72	14.00	3.25	9.28	93	137	13
9:12:00	163	143	68	72	14.00	2.98	9.38	286	125	13
9:16:00	163	143	68	72	14.00	4.05	8.74	42	200	13
9:20:00	179	164	68	72	14.00	4.96	7.96	12	303	13
9:24:00	195	178	68	72	14.00	4.74	8.16	12	357	13
9:28:00	209	178	68	72	14.00	5.32	7.96	0	359	13
9:32:00	209	191	68	72	14.00	3.66	8.99	0	237	13
9:36:00	209	191	68	72	14.00	3.52	9.13	0	225	13
9:40:00	223	207	68	72	17.50	4.13	8.60	0	266	13
9:44:00	237	220	68	72	17.50	4.08	8.65	0	278	13
9:48:00	237	220	68	72	17.50	3.66	8.94	0	239	13
9:52:00	237	220	68	72	17.50	4.03	8.69	0	286	13
9:56:00	237	220	68	72	17.50	3.98	8.94	0	80	13
10:00:00	242	220	70	81	17.80	3.64	9.04	0	88	1

D101510.XLS

10/15/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.37	0.42	8.87	2.35	0.50	23.60	556	225	396	577
10:04:00	0.34	0.53	8.87	2.35	0.50	23.60	556	225	396	577
10:08:00	0.37	0.46	8.87	2.35	0.50	23.60	624	225	396	577
10:12:00	0.34	0.48	10.25	2.35	0.50	26.40	659	250	423	604
10:16:00	0.36	0.60	10.78	2.35	0.50	26.40	659	250	448	604
10:20:00	0.35	0.51	12.61	2.26	0.50	26.40	659	250	477	640
10:24:00	0.26	0.50	12.62	2.26	0.50	26.40	684	276	477	640
10:28:00	0.35	0.53	12.62	2.26	0.50	26.40	684	276	477	670
10:32:00	0.26	0.48	12.05	2.26	0.50	26.40	684	276	477	670
10:36:00	0.35	0.58	11.53	2.26	0.50	29.90	761	304	504	670
10:40:00	0.27	0.49	11.24	2.26	0.50	32.50	761	304	533	670
10:44:00	0.32	0.69	11.54	2.26	0.50	32.50	727	304	533	670
10:48:00	0.27	0.51	11.75	2.26	0.50	32.50	727	331	533	670
10:52:00	0.30	0.60	11.21	2.26	0.50	32.50	727	331	559	670
10:56:00	0.27	0.52	11.17	2.26	0.50	32.50	764	331	559	670
11:00:00	0.33	0.47	11.64	2.26	0.50	32.50	764	331	559	670
11:04:00	0.27	0.54	11.34	2.26	0.50	32.50	764	331	585	698
11:08:00	0.35	0.48	11.36	2.26	0.49	32.50	764	331	585	698
11:12:00	0.25	0.65	11.63	2.26	0.49	32.50	794	358	585	698
11:16:00	0.35	0.50	11.61	2.26	0 49	32.50	794	358	585	698
11:20:00	0.24	0.68	11.37	2.26	0.50	32.50	794	358	585	725
11:24:00	0.34	0.51	11.24	2.26	0.50	32.50	823	358	616	725
11:28:00	0.25	0.60	11.24	2.26	0.50	32.50	823	358	616	725
11:32:00	0.32	0.52	11.55	2.26	0.50	32.50	823	358	616	725
11:36:00	0.29	0.48	11.23	2.26	0.50	32.50	823	358	616	725
11:40:00	0.25	0.56	11.24	2.26	0.50	32.50	851	358	616	725
11:44:00	0.25	0.49	11.22	2.26	0.50	32.50	851	385	616	756
11:48:00	0.30	0.66	11.55	2.26	0.50	32.50	851	385	616	756
11:52:00	0.30	0.51	11.36	2.26	0.50	32.50	851	385	645	756
11:56:00	0.25	0.73	11.32	2.26	0.50	32.50	887	385	645	756
12:00:00	0.28	0.51	11.65	2.18	0.50	34.30	880	395	662	793

D101510.XLS

10/15/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	242	220	70	81	17.80	3.64	9.04	0	88	1
10:04:00	242	220	70	81	17.80	3.93	8.74	0	84	1
10:08:00	242	234	70	81	17.80	3.96	8.74	0	100	1
10:12:00	258	234	70	81	20.50	3.71	9.04	0	90	1
10:16:00	258	234	70	81	20.50	3.71	8.79	0	114	1
10:20:00	275	254	70	81	20.50	3.96	8.94	0	126	1
10:24:00	275	254	70	81	20.50	3.96	8.79	0	143	1
10:28:00	275	254	70	81	20.50	3.96	8.79	0	151	1
10:32:00	290	267	70	81	20.50	3.96	8.79	0	138	1
10:36:00	290	267	70	81	24.90	4.23	8.79	0	162	1
10:40:00	310	282	70	81	27.60	3.61	9.04	0	134	1
10:44:00	310	282	70	81	27.60	3.96	8.69	0	175	1
10:48:00	310	298	70	81	27.60	3.74	9.04	0	145	1
10:52:00	324	298	70	81	27.60	3.61	8.84	0	168	1
10:56:00	324	298	70	81	27.60	3.88	8.84	0	162	1
11:00:00	324	298	70	81	27.60	3.64	8.84	0	151	1
11:04:00	338	298	70	81	27.60	4.05	8.84	0	181	1
11:08:00	338	298	70	81	27.60	3.52	8.84	0	145	1
11:12:00	338	312	70	81	27.60	4.03	8.84	0	190	1
11:16:00	338	312	70	81	27.60	3.52	9.13	0	144	1
11:20:00	338	312	70	81	27.60	3.79	8.74	0	191	1
11:24:00	338	312	70	81	27.60	3.54	9.13	0	153	1
11:28:00	338	312	70	81	27.60	3.40	8.89	0	184	1
11:32:00	354	326	70	81	27.60	3.71	8.79	0	168	1
11:36:00	354	326	70	81	27.60	3.54	9.18	0	178	1
11:40:00	354	326	70	81	27.60	3.93	8.94	0	213	1
11:44:00	354	326	70	81	27.60	3.35	9.13	0	178	1
11:48:00	354	326	70	81	27.60	3.91	8.69	0	234	1
11:52:00	354	326	70	107	27.60	3.22	9.33	0	158	1
11:56:00	354	326	70	107	27.60	3.57	8.94	0	217	1
12:00:00	367	338	73	108	28.60	2.91	9.52	0	145	25

D101512.XLS

10/15/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.28	0.51	11.65	2.18	0.50	34.30	880	395	662	793
12:04:00	0.28	0.71	11.21	2.18	0.50	34.30	880	395	662	793
12:08:00	0.28	0.51	11.42	2.18	0.50	34.30	880	395	662	793
12:12:00	0.28	0.71	11.50	2.18	0.50	34.30	987	428	723	793
12:16:00	0.28	0.51	11.29	2.18	0.50	34.30	1064	428	724	793
12:20:00	0.29	0.72	11.29	2.18	0.50	37.80	1133	470	787	793
12:24:00	0.28	0.51	11.32	2.18	0.50	44.80	1133	470	787	767
12:28:00	0.28	0.73	11.43	2.18	0.50	60.10	1133	510	760	737
12:32:00	0.22	0.51	11.47	2.18	0.50	89.00	1133	564	696	676
12:36:00	0.29	0.69	11.12	2.18	0.50	112.00	1056	564	671	646
12:40:00	3.88	0.50	11.08	2.18	0.50	118.30	987	564	605	646
12:44:00	3.84	0.62	10.51	2.18	0.50	130.40	987	564	633	620
12:48:00	3.70	0.53	10.77	2.18	0.50	136.40	918	564	573	620
12:52:00	3.65	0.67	12.00	0.00	0.49	140.00	875	564	515	620
12:56:00	3.72	0.54	13.34	0.00	0.50	140.00	875	564	515	594
13:00:00	3.77	0.68	13.65	0.00	0.50	143.50	875	564	544	594
13:04:00	3.65	0.54	13.55	0.00	0.50	146.10	875	564	544	594
13:08:00	0.79	0.70	13.69	0.00	0.50	148.90	875	564	544	594
13:12:00	0.59	0.54	13.23	0.00	0.51	151.70	875	590	516	594
13:16:00	0.77	0.69	13.32	0.00	0.49	151.70	844	590	516	594
13:20:00	0.40	0.54	13.14	0.00	0.50	151.70	844	590	514	594
13:24:00	0.36	0.70	13.43	0.00	0.51	151.70	844	590	514	594
13:28:00	0.27	0.54	12.70	0.00	0.50	151.70	841	590	514	594
13:32:00	1.16	0.67	12.94	0.00	0.51	151.70	841	590	542	594
13:36:00	0.93	0.55	13.78	0.00	0.49	151.70	841	590	510	594
13:40:00	0.26	0.63	13.61	0.00	0.50	151.70	841	590	510	594
13:44:00	0.72	0.55	13.45	0.00	0.49	151.70	841	590	510	594
13:48:00	2.12	0.55	13.05	0.00	0.50	151.70	841	590	510	594
13:52:00	0.65	0.55	13.45	0.00	0.51	151.70	841	590	527	621
13:56:00	1.28	0.50	13.21	0.00	0.50	154.30	841	617	527	621
14:00:00	0.64	0.55	14.58	0.00	0.45	154.20	862	617	548	626

D101512.XLS

10/15/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	367	338	73	108	28.60	2.91	9.52	0	145	25
12:04:00	367	338	73	108	28.60	3.42	8.99	0	214	25
12:08:00	367	338	73	108	28.60	2.88	9.62	0	148	25
12:12:00	367	338	73	108	28.60	3.37	9.04	0	215	25
12:16:00	367	338	73	108	28.60	2.83	9.62	0	148	25
12:20:00	367	338	73	108	33.70	3.37	9.04	0	223	25
12:24:00	386	355	73	108	40.80	2.83	9.62	0	157	25
12:28:00	409	378	73	108	57.50	3.15	9.23	0	231	25
12:32:00	442	422	73	108	86.30	3.15	9.48	0	197	25
12:36:00	477	437	73	134	109.10	3.15	9.48	0	201	25
12:40:00	477	454	73	134	115.60	2.78	9.48	0	142	25
12:44:00	491	470	73	134	127.80	2.78	9.72	0	124	25
12:48:00	491	470	73	134	133.80	4.57	7.77	42	81	25
12:52:00	476	470	73	134	137.10	3.35	9.09	15	115	25
12:56:00	476	470	73	134	137.10	2.71	9.62	20	286	25
13:00:00	491	470	73	134	140.60	2.71	9.62	5	320	25
13:04:00	491	483	73	134	143.40	3.08	9.28	5	74	25
13:08:00	491	483	73	134	146.10	3.08	9.28	5	303	25
13:12:00	504	483	73	134	148.80	3.08	9.28	5	303	25
13:16:00	504	483	73	134	148.80	3.08	9.28	5	303	25
13:20:00	504	498	73	134	148.80	3.08	9.28	5	303	25
13:24:00	504	498	73	159	148.80	2.76	9.28	5	315	25
13:28:00	504	498	73	159	148.80	2.76	9.28	5	315	25
13:32:00	504	498	73	159	148.80	2.76	9.28	5	315	25
13:36:00	504	498	73	159	148.80	2.76	9.57	5	303	25
13:40:00	520	498	73	159	148.80	2.76	9.57	5	320	25
13:44:00	520	498	73	159	148.80	2.76	9.57	5	337	98
13:48:00	520	511	73	159	148.80	2.76	9.57	5	337	1
13:52:00	520	511	73	159	148.80	2.76	9.57	5	325	1
13:56:00	520	511	73	159	151.60	2.76	9.57	5	325	1
14:00:00	528	521	97	177	151.50	2.74	9.48	12	332	1

D101514.XLS

10/15/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.64	0.55	14.58	0.00	0.45	154.20	862	617	548	626
14:04:00	0.74	0.50	14.30	0.00	0.46	154.20	862	617	548	626
14:08:00	0.82	0.57	15.00	0.00	0.44	154.20	862	617	548	626
14:12:00	0.62	0.50	13.35	0.00	0.45	154.20	862	617	548	626
14:16:00	0.76	0.60	13.71	0.00	0.45	154.20	862	617	548	626
14:20:00	0.76	0.51	13.76	0.00	0.46	154.20	862	617	548	626
14:24:00	0.72	0.76	12.95	0.00	0.45	154.20	862	617	548	626
14:28:00	0.86	0.52	13.75	0.00	0.45	156.80	862	617	548	626
14:32:00	0.59	0.75	13.56	0.00	0.46	156.80	862	617	548	626
14:36:00	0.73	0.52	13.27	0.00	0.45	156.80	862	617	548	626
14:40:00	0.63	0.72	13.16	0.00	0.45	156.80	862	617	578	626
14:44:00	0.83	0.53	13.45	0.00	0.44	156.80	836	617	582	626
14:48:00	0.62	0.71	13.42	0.00	0.46	156.80	836	617	548	626
14:52:00	0.46	0.53	13.26	0.00	0.44	156.80	836	642	509	626
14:56:00	0.80	0.69	13.77	0.00	0.45	156.80	836	642	509	652
15:00:00	0.74	0.54	14.02	0.00	0.45	156.80	836	642	479	652
15:04:00	0.72	0.62	13.43	0.00	0.46	156.80	871	642	523	652
15:08:00	0.73	0.55	13.64	0.00	0.47	156.80	827	642	490	652
15:12:00	0.78	0.50	13.96	0.00	0.45	156.80	835	642	490	652
15:16:00	0.82	0.56	12.94	0.00	0.45	156.80	865	642	490	652
15:20:00	0.72	0.50	13.74	0.00	0.44	156.80	865	642	490	652
15:24:00	0.93	0.00	2.59	0.00	0.46	133.40	552	420	371	610
15:28:00	0.67	0.00	2.86	0.00	0.43	50.40	552	345	336	578
15:32:00	1.37	0.00	0.00	0.00	0.34	17.60	596	385	302	645
15:36:00	0.01	0.00	0.00	0.00	0.00	17.60	645	411	372	499
15:40:00	0.00	0.00	0.00	0.00	0.00	17.60	645	438	403	419
15:44:00	0.00	0.00	0.00	0.00	0.00	17.60	645	438	430	391
15:48:00	0.00	0.00	0.00	0.00	0.00	17.60	645	464	430	391
15:52:00	0.00	0.00	0.00	0.00	0.00	17.60	674	464	430	391
15:56:00	0.00	0.00	0.00	0.00	0.00	17.60	674	464	430	364
16:00:00	0.00	0.00	0.00	0.00	0.00	15.70	686	461	442	338

D101514.XLS

10/15/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	528	521	97	177	151.50	2.74	9.48	12	332	1
14:04:00	528	521	97	177	151.50	2.74	9.48	12	332	1
14:08:00	528	521	97	177	151.50	2.74	9.23	12	332	1
14:12:00	528	521	97	177	151.50	2.74	9.23	12	332	1
14:16:00	528	521	97	177	151.50	2.74	9.48	12	332	1
14:20:00	528	521	97	177	151.50	2.74	9.48	12	332	1
14:24:00	542	521	97	177	151.50	2.74	9.48	12	332	1
14:28:00	542	521	97	177	154.10	2.74	9.48	12	332	1
14:32:00	542	537	97	177	154.10	2.74	9.77	12	320	1
14:36:00	542	537	97	177	154.10	2.74	9.52	12	335	1
14:40:00	542	537	97	177	154.10	2.74	9.52	12	335	1
14:44:00	542	537	97	177	154.10	2.74	9.77	12	330	1
14:48:00	542	537	97	177	154.10	2.42	9.77	12	347	1
14:52:00	542	537	97	177	154.10	2.42	9.77	12	347	1
14:56:00	542	537	97	177	154.10	2.42	9.77	12	347	1
15:00:00	558	537	97	177	154.10	2.69	9.77	12	359	1
15:04:00	558	551	97	177	154.10	2.69	9.52	12	347	1
15:08:00	558	551	97	177	154.10	2.69	9.77	12	325	1
15:12:00	558	551	97	177	154.10	2.42	10.06	34	337	1
15:16:00	558	551	97	202	154.10	2.42	9.77	22	337	1
15:20:00	558	551	97	202	154.10	2.42	9.77	22	337	1
15:24:00	522	529	97	202	129.10	6.11	6.40	25	169	1
15:28:00	457	478	97	202	43.80	5.81	3.86	47	69	1
15:32:00	412	425	97	173	14.40	8.20	3.08	34	51	1
15:36:00	412	408	97	173	14.40	11.72	1.86	49	83	1
15:40:00	396	391	97	173	14.40	14.14	0.20	7	20	1
15:44:00	396	371	97	173	14.40	14.41	0.20	7	7	1
15:48:00	382	371	97	173	14.40	14.41	0.20	7	12	1
15:52:00	382	356	97	173	14.40	14.41	0.20	7	12	1
15:56:00	382	356	97	173	14.40	14.41	0.20	7	12	1
16:00:00	362	344	100	167	14.00	14.33	0.00	0	17	0

D101516.XLS

10/15/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	0.00	0.00	0.00	0.00	15.70	686	461	442	338
16:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D101516.XLS

10/15/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	362	344	100	167	14.00	14.33	0.00	0	17	0
16:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D101610.XLS

10/16/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:20:00	0.01	0.33	10.89	0.00	0.48	18.90	182	229	276	463
10:24:00	0.01	0.39	11.03	0.00	0.50	18.90	290	257	276	502
10:28:00	0.01	0.45	11.10	0.00	0.50	21.50	299	257	304	572
10:32:00	0.01	0.75	11.88	0.00	0.50	21.50	362	257	330	639
10:36:00	0.01	0.59	13.90	0.00	0.50	21.50	394	286	361	711
10:40:00	0.01	0.72	17.82	0.00	0.50	24.20	536	311	392	794
10:44:00	0.01	0.94	19.01	0.00	0.50	24.20	714	339	422	836
10:48:00	0.01	0.70	20.44	0.00	0.50	27.00	748	339	447	901
10:52:00	0.01	0.67	19.56	0.00	0.50	27.00	748	339	475	929
10:56:00	0.01	0.70	18.90	0.00	0.50	27.00	748	365	505	960
11:00:00	0.01	0.66	19.90	0.00	0.50	27.00	839	365	505	987
11:04:00	0.01	0.86	20.77	0.00	0.50	27.00	814	365	531	987
11:08:00	0.01	0.80	20.50	0.00	0.50	29.70	814	393	531	1046
11:12:00	0.01	0.68	20.93	0.00	0.50	29.70	853	393	561	1072
11:16:00	0.01	0.70	21.65	0.00	0.50	29.70	910	393	594	1099
11:20:00	0.01	0.73	21.65	0.00	0.50	29.70	910	419	379	1099
11:24:00	0.01	0.75	21.23	0.00	0.50	29.70	904	419	928	1129
11:28:00	0.01	0.77	20.31	0.00	0.50	29.70	1029	446	962	1158
11:32:00	0.01	0.81	21.65	0.00	0.50	32.40	978	446	950	1158
11:36:00	0.01	0.89	21.65	2.56	0.50	32.40	1006	446	950	1185
11:40:00	0.01	0.96	21.65	2.39	0.50	32.40	1202	446	976	1185
11:44:00	0.01	0.95	21.65	0.00	0.50	32.40	1151	524	976	1185
11:48:00	0.01	0.95	20.97	0.00	0.50	32.40	1211	524	976	1211
11:52:00	0.01	0.95	20.90	0.00	0.50	32.40	1211	524	976	1238
11:56:00	0.01	0.97	20.90	0.00	0.50	32.40	1244	524	1005	1238
12:00:00	0.00	0.99	21.61	0.00	0.50	34.90	1180	550	1043	1291

10/16/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:20:00	214	195	85	107	14.10	6.13	7.67	44	47	1
10:24:00	229	195	85	107	14.10	7.86	7.08	20	34	1
10:28:00	229	216	85	107	14.10	6.20	7.96	20	51	1
10:32:00	244	231	85	107	14.10	4.86	8.79	20	71	1
10:36:00	262	246	85	107	14.10	2.81	9.77	7	100	1
10:40:00	276	246	85	107	14.10	2.25	10.75	20	117	1
10:44:00	290	262	85	107	14.10	4.59	9.57	7	108	62
10:48:00	305	280	85	107	14.10	3.18	9.82	7	115	62
10:52:00	320	280	85	107	14.10	3.44	9.67	7	122	62
10:56:00	320	297	85	107	14.10	3.35	9.67	7	115	62
11:00:00	333	297	85	107	14.10	5.08	8.60	7	86	62
11:04:00	333	314	85	107	14.10	4.84	8.74	7	93	12
11:08:00	347	314	85	107	14.10	3.86	9.23	7	117	12
11:12:00	347	327	85	107	14.10	3.61	9.52	7	130	12
11:16:00	362	327	85	107	14.10	5.03	8.79	7	93	12
11:20:00	362	327	85	107	14.10	5.03	8.79	7	93	12
11:24:00	362	340	85	107	14.10	3.54	9.77	7	132	12
11:28:00	362	340	85	107	14.10	4.10	9.13	7	120	12
11:32:00	378	354	85	107	14.10	5.54	8.45	7	93	12
11:36:00	378	354	85	107	14.10	5.74	8.16	7	93	12
11:40:00	378	354	85	107	14.10	6.18	7.91	7	93	12
11:44:00	392	371	85	107	14.10	6.18	7.91	7	93	12
11:48:00	392	371	85	107	14.10	5.06	8.40	7	108	12
11:52:00	392	371	85	107	14.10	4.47	8.69	7	125	12
11:56:00	392	371	85	107	14.10	4.13	8.99	7	125	12
12:00:00	410	387	89	126	15.30	3.83	9.33	0	147	1

D101612.XLS

10/16/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.99	21.61	0.00	0.50	34.90	1180	550	1043	1291
12:04:00	0.00	1.04	21.46	0.00	0.50	34.90	951	550	1043	1328
12:08:00	0.00	0.99	21.46	0.00	0.50	34.90	995	550	1043	1357
12:12:00	0.00	0.99	21.49	0.00	0.50	34.90	1091	578	1071	1357
12:16:00	0.00	0.98	21.47	0.00	0.50	41.20	1279	578	1154	1357
12:20:00	0.00	0.99	21.41	0.00	0.50	65.40	1427	643	1202	1310
12:24:00	0.00	0.99	21.41	0.00	0.50	79.70	1375	700	1202	1213
12:28:00	0.00	0.99	21.41	0.00	0.49	89.40	1312	700	1202	1157
12:32:00	0.00	0.98	20.55	0.00	0.49	92.20	1235	727	1154	1157
12:36:00	0.00	0.98	21.08	0.00	0.49	114.90	1418	775	1211	1120
12:40:00	0.00	0.92	21.08	0.00	0.50	150.30	1449	801	1171	1057
12:44:00	0.00	0.87	19.55	0.00	0.50	169.70	1154	851	990	993
12:48:00	0.00	0.92	20.04	0.00	0.50	161.60	953	819	907	993
12:52:00	0.00	0.96	20.75	0.00	0.50	158.40	917	819	994	993
12:56:00	4.00	0.99	20.46	0.00	0.50	158.40	881	847	994	993
13:00:00	4.00	1.02	20.46	0.00	0.50	155.80	916	847	1038	1019
13:04:00	1.12	1.09	20.55	0.00	0.50	155.80	920	847	1043	1019
13:08:00	1.02	1.07	20.67	0.00	0.50	155.80	1041	847	1086	1019
13:12:00	0.56	1.05	20.59	0.00	0.49	155.80	910	847	1015	1019
13:16:00	0.45	1.02	20.23	0.00	0.51	155.80	879	847	952	1019
13:20:00	0.34	1.00	20.53	0.00	0.50	155.80	926	875	952	1019
13:24:00	0.35	0.91	20.19	0.00	0.50	155.80	895	875	952	1019
13:28:00	0.44	0.95	20.33	0.00	0.50	155.80	895	875	872	1046
13:32:00	0.79	1.00	20.24	0.00	0.50	155.80	1011	875	1024	1046
13:36:00	0.78	1.05	20.24	0.00	0.50	155.80	983	875	995	1046
13:40:00	0.73	1.06	20.19	0.00	0.60	155.80	1078	875	1020	1046
13:44:00	0.78	1.04	19.64	0.00	0.41	155.80	952	875	917	1046
13:48:00	0.70	1.02	20.07	0.00	0.50	155.80	970	845	973	1046
13:52:00	0.71	1.04	19.64	0.00	0.50	155.80	952	876	915	1046
13:56:00	0.65	0.90	20.15	0.00	0.50	155.80	954	876	817	1046
14:00:00	0.99	0.95	19.43	0.00	0.50	156.10	1057	904	913	1073

D101612.XLS

10/16/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	410	387	89	126	15.30	3.83	9.33	0	147	1
12:04:00	410	387	89	126	15.30	2.59	10.26	0	178	1
12:08:00	423	400	89	126	15.30	2.98	9.82	0	178	1
12:12:00	423	400	89	126	15.30	3.32	9.48	0	166	1
12:16:00	440	413	89	126	27.30	4.05	9.18	0	154	1
12:20:00	499	459	89	126	57.90	3.76	9.18	0	173	1
12:24:00	533	494	89	126	72.80	3.76	9.18	0	213	1
12:28:00	549	522	89	126	80.70	4.05	9.18	0	225	1
12:32:00	568	539	89	126	87.30	4.05	9.18	0	244	1
12:36:00	603	580	89	152	109.90	4.49	8.94	0	232	1
12:40:00	643	620	89	152	146.60	4.49	8.94	0	244	1
12:44:00	666	637	89	152	165.70	4.49	8.94	0	269	1
12:48:00	666	652	89	152	158.40	4.18	8.94	0	298	1
12:52:00	666	652	89	152	155.60	4.18	8.94	0	298	1
12:56:00	666	652	89	152	152.30	4.18	8.94	0	298	1
13:00:00	679	652	89	152	152.30	4.47	8.94	0	298	1
13:04:00	679	667	89	177	152.30	4.47	8.94	0	298	1
13:08:00	679	667	89	177	152.30	4.47	8.94	0	298	1
13:12:00	692	680	89	177	152.30	4.47	8.94	0	169	1
13:16:00	692	680	89	177	152.30	4.47	8.94	0	142	1
13:20:00	692	680	89	177	152.30	4.20	8.94	0	130	1
13:24:00	692	680	89	177	152.30	4.20	9.23	0	183	1
13:28:00	707	694	89	177	152.30	4.20	9.23	0	254	1
13:32:00	707	694	89	177	152.30	4.20	8.99	0	193	1
13:36:00	707	694	89	177	152.30	4.18	9.33	0	139	1
13:40:00	707	694	89	203	152.30	3.86	9.33	0	120	1
13:44:00	707	708	89	203	152.30	4.13	9.33	0	105	1
13:48:00	724	708	89	203	149.60	3.64	9.33	0	117	1
13:52:00	724	708	89	203	149.60	3.71	9.57	0	117	1
13:56:00	724	708	89	203	149.60	3.74	9.57	0	164	1
14:00:00	732	717	103	215	150.00	3.71	9.62	0	176	7

D101614.XLS

10/16/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.99	0.95	19.43	0.00	0.50	156.10	1057	904	913	1073
14:04:00	1.56	1.01	19.50	0.00	0.50	156.10	1106	912	801	1073
14:08:00	1.00	1.12	19.88	0.00	0.50	156.10	997	877	694	1073
14:12:00	0.99	1.10	19.64	0.00	0.50	156.10	1067	904	805	1073
14:16:00	1.16	1.05	19.64	0.00	0.50	156.10	1156	904	833	1073
14:20:00	1.12	1.01	19.64	0.00	0.50	156.10	1143	904	792	1073
14:24:00	1.17	0.89	19.91	0.00	0.50	156.10	1115	904	781	1073
14:28:00	1.14	0.94	19.80	0.00	0.50	156.10	1199	904	771	1073
14:32:00	1.09	1.00	19.99	0.00	0.50	156.10	1199	904	734	1073
14:36:00	1.19	1.06	19.92	0.00	0.50	156.10	1258	904	755	1073
14:40:00	1.08	1.12	19.58	0.00	0.50	156.10	1239	904	721	1099
14:44:00	0.94	1.09	19.58	0.00	0.50	156.10	1173	904	721	1099
14:48:00	1.17	1.06	19.55	0.00	0.50	156.10	1266	904	749	1099
14:52:00	1.28	1.03	19.52	0.00	0.50	156.10	1256	931	790	1099
14:56:00	1.36	1.00	19.80	0.00	0.49	156.10	1263	931	780	1099
15:00:00	1.49	0.90	19.80	0.00	0.49	156.10	1315	931	871	1125
15:04:00	1.07	0.95	19.80	0.00	0.50	153.30	1313	924	746	1125
15:08:00	1.20	0.98	19.80	0.00	0.50	153.30	1361	924	809	1125
15:12:00	1.26	1.02	19.80	0.00	0.50	153.30	1286	924	843	1125
15:16:00	2.14	1.08	20.07	0.00	0.50	153.30	1266	942	824	1125
15:20:00	2.77	0.00	3.12	0.00	0.50	86.60	747	558	432	977
15:24:00	2.71	0.00	0.00	0.00	0.50	25.20	747	491	349	1009
15:28:00	3.46	0.00	3.02	0.00	0.49	16.90	902	263	463	1036
15:32:00	0.07	0.00	0.00	0.00	0.00	16.90	939	431	608	772
15:36:00	0.03	0.00	0.00	0.00	0.00	16.90	1004	629	680	833
15:40:00	0.03	0.00	0.00	0.00	0.00	16.90	1004	658	680	797
15:44:00	0.03	0.00	0.00	0.00	0.00	16.90	1029	658	680	731
15:48:00	0.03	0.00	0.00	0.00	0.00	16.90	1029	658	680	704
15:52:00	0.03	0.00	0.00	0.00	0.00	16.90	1029	658	680	676
15:56:00	0.03	0.00	0.00	0.00	0.00	16.90	1029	658	680	649
16:00:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	631

D101614.XLS

10/16/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	732	717	103	215	150.00	3.71	9.62	0	176	7
14:04:00	732	717	103	215	150.00	3.71	9.62	0	176	7
14:08:00	732	717	103	215	150.00	3.52	9.72	0	176	7
14:12:00	732	717	103	215	150.00	3.52	9.96	0	191	7
14:16:00	732	717	103	215	150.00	3.13	9.96	0	191	7
14:20:00	732	731	103	215	150.00	3.03	9.96	0	191	7
14:24:00	732	731	103	215	150.00	3.35	9.96	0	195	7
14:28:00	746	731	103	215	150.00	3.35	9.96	0	183	7
14:32:00	746	731	103	215	150.00	3.37	9.96	0	198	7
14:36:00	746	731	103	215	150.00	3.30	9.96	0	186	7
14:40:00	746	731	103	215	150.00	3.25	9.96	0	188	7
14:44:00	746	747	103	215	150.00	3.25	9.96	0	200	7
14:48:00	760	747	103	215	150.00	2.98	9.96	0	200	7
14:52:00	760	747	103	215	150.00	2.86	9.96	0	183	7
14:56:00	760	747	103	215	146.90	2.91	10.21	0	183	7
15:00:00	760	747	103	215	146.90	2.96	10.21	0	171	7
15:04:00	760	747	103	215	146.90	3.22	9.96	0	183	7
15:08:00	760	747	103	215	146.90	3.22	9.96	0	183	7
15:12:00	760	747	103	240	146.90	3.22	9.96	0	166	7
15:16:00	760	747	103	240	144.10	3.22	9.72	0	244	7
15:20:00	677	686	103	240	78.70	9.55	4.64	12	71	7
15:24:00	600	591	103	212	14.40	9.74	3.91	117	29	7
15:28:00	569	550	129	212	14.40	16.82	1.47	29	42	7
15:32:00	553	532	129	212	14.40	15.63	1.47	29	0	7
15:36:00	536	516	129	212	14.40	15.26	1.47	29	0	7
15:40:00	523	501	129	212	14.40	14.94	1.47	29	0	7
15:44:00	509	488	129	186	14.40	14.94	1.47	29	0	7
15:48:00	509	488	129	186	14.40	14.94	1.47	29	0	7
15:52:00	495	472	129	186	14.40	14.94	1.47	29	0	7
15:56:00	495	472	129	186	14.40	14.94	1.47	29	0	7
16:00:00	476	452	124	176	13.80	14.80	1.47	34	0	3

D101616.XLS

10/16/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	631
16:04:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	631
16:08:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	606
16:12:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	606
16:16:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	606
16:20:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	606
16:24:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	580
16:28:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	669	695	580
16:32:00	0.00	0.00	0.00	0.00	0.00	15.70	1040	643	695	580
16:36:00	0.00	0.00	0.00	0.00	0.00	15.70	1015	643	695	580
16:40:00	0.00	0.00	0.00	0.00	0.00	15.70	1015	643	695	580
16:44:00	0.00	0.00	0.00	0.00	0.00	15.70	1015	643	695	555
16:48:00	0.00	0.00	0.00	0.00	0.00	15.70	1015	643	695	555
16:52:00	0.00	0.00	0.00	0.00	0.00	15.70	1015	643	695	555
16:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D101616.XLS

10/16/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	476	452	124	176	13.80	14.80	1.47	34	0	3
16:04:00	476	452	124	176	13.80	14.80	1.47	34	0	3
16:08:00	476	452	124	176	13.80	14.80	1.47	34	0	3
16:12:00	476	436	124	176	13.80	14.80	1.47	34	0	3
16:16:00	459	436	124	176	13.80	14.80	1.47	34	0	3
16:20:00	459	436	124	176	13.80	14.80	1.47	34	0	3
16:24:00	459	436	124	176	13.80	14.80	1.47	34	0	3
16:28:00	459	421	124	176	13.80	14.80	1.47	34	0	3
16:32:00	445	421	124	176	13.80	15.07	1.47	34	0	3
16:36:00	445	421	124	176	13.80	15.07	1.47	34	0	3
16:40:00	445	421	124	176	13.80	15.07	1.47	34	0	3
16:44:00	445	406	124	176	13.80	15.07	1.47	34	0	3
16:48:00	445	406	124	176	13.80	15.07	1.47	34	0	3
16:52:00	431	406	124	176	13.80	15.07	1.47	34	0	3
16:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D101808.XLS

10/18/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.19	2.82	0.00	0.00	16.60	187	158	183	169
8:04:00	0.00	0.30	4.70	0.00	0.00	16.60	261	158	183	169
8:08:00	0.00	0.25	6.83	0.00	0.34	16.60	316	158	215	200
8:12:00	0.00	0.27	7.88	0.00	0.36	16.60	398	158	241	264
8:16:00	0.00	0.36	10.13	0.00	0.36	19.30	499	186	300	345
8:20:00	0.00	0.49	12.43	0.00	0.47	22.10	622	213	344	407
8:24:00	0.00	0.69	14.06	0.00	0.47	22.10	785	240	429	529
8:28:00	0.00	0.65	17.82	0.00	0.47	24.90	961	274	516	635
8:32:00	0.00	0.71	18.12	0.00	0.50	28.30	1070	303	559	715
8:36:00	0.00	0.88	18.45	0.00	0.50	31.50	1151	303	634	799
8:40:00	0.00	0.92	19.18	0.00	0.50	31.50	1215	330	661	865
8:44:00	0.00	0.97	21.44	0.00	0.51	34.40	1292	330	745	941
8:48:00	0.00	0.96	21.44	0.00	0.50	34.40	1366	357	810	1001
8:52:00	0.00	0.83	21.44	0.00	0.50	34.40	1401	357	853	1027
8:56:00	0.00	0.86	21.44	0.00	0.50	34.40	1428	382	882	1063
9:00:00	0.00	0.89	21.44	0.00	0.50	34.40	1464	382	916	1127
9:04:00	0.00	0.89	21.44	0.00	0.50	34.40	1464	382	943	1127
9:08:00	0.00	0.92	21.65	4.29	0.50	37.20	1511	418	975	1157
9:12:00	0.00	0.97	21.60	4.36	0.50	37.20	1511	418	944	1157
9:16:00	0.00	1.08	21.60	4.18	0.50	37.20	1511	444	975	1157
9:20:00	0.00	1.04	21.12	4.18	0.50	37.20	1511	444	975	1157
9:24:00	0.00	1.01	20.97	4.18	0.50	39.90	1511	444	975	1157
9:28:00	0.00	0.95	21.65	0.00	0.50	39.90	1511	428	948	1184
9:32:00	0.00	0.90	20.93	0.00	0.50	39.90	1511	455	976	1184
9:36:00	0.00	0.89	21.45	0.00	0.50	45.40	1540	523	1035	1211
9:40:00	0.00	0.86	21.50	0.00	0.50	49.20	1566	523	1035	1178
9:44:00	0.00	0.81	21.50	0.00	0.50	51.90	1566	523	1035	1178
9:48:00	0.00	0.82	21.53	0.00	0.50	51.90	1566	548	1035	1150
9:52:00	0.00	0.83	21.57	0.00	0.50	51.90	1566	548	1035	1150
9:56:00	0.00	0.84	21.57	0.00	0.47	51.90	1566	548	1035	1179
10:00:00	0.00	0.84	20.90	0.00	0.34	52.00	1588	565	1039	1170

D101808.XLS

10/18/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	124	119	78	89	14.10	13.92	1.81	1000	0	0
8:04:00	124	119	78	89	14.10	4.88	7.72	1000	27	0
8:08:00	142	136	78	89	14.10	4.03	8.35	1000	39	0
8:12:00	158	136	78	89	14.10	6.08	7.57	632	39	0
8:16:00	171	154	78	89	14.10	6.52	7.52	220	39	0
8:20:00	185	168	78	89	14.10	5.84	8.01	83	54	0
8:24:00	214	182	78	89	14.10	4.49	8.69	37	90	0
8:28:00	230	213	78	89	14.10	1.95	10.31	291	115	0
8:32:00	269	229	78	89	14.10	4.42	8.69	27	108	0
8:36:00	284	255	78	89	14.10	5.40	8.35	12	93	0
8:40:00	298	268	78	89	14.10	4.47	8.65	12	105	0
8:44:00	314	284	78	89	14.10	3.86	9.23	12	134	0
8:48:00	332	301	78	89	14.10	2.61	10.01	0	171	0
8:52:00	332	301	78	89	14.10	2.49	10.16	0	183	0
8:56:00	347	317	78	89	14.10	2.35	10.45	0	186	0
9:00:00	347	317	78	89	14.10	2.30	10.50	0	188	0
9:04:00	362	330	78	89	14.10	2.86	10.16	0	191	0
9:08:00	362	330	78	89	14.10	5.40	8.60	0	164	0
9:12:00	377	358	78	89	14.10	6.11	8.26	0	164	0
9:16:00	377	358	78	89	14.10	6.06	8.26	0	161	0
9:20:00	390	358	78	89	14.10	6.08	8.01	0	156	0
9:24:00	390	358	78	89	14.10	6.50	7.72	0	132	0
9:28:00	390	372	78	89	14.10	5.45	8.30	0	122	0
9:32:00	405	372	78	89	14.10	5.45	8.40	0	117	0
9:36:00	418	372	78	114	30.20	6.03	8.06	0	103	0
9:40:00	431	411	78	114	33.40	6.23	7.82	0	86	0
9:44:00	445	411	78	114	33.40	6.30	7.82	0	86	0
9:48:00	445	411	78	114	33.40	6.35	7.82	0	90	0
9:52:00	445	428	78	114	36.10	6.42	7.91	0	90	0
9:56:00	460	428	78	114	36.10	6.45	7.91	0	88	0
10:00:00	465	441	80	124	35.90	6.42	7.96	0	90	1

D101810.XLS

10/18/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.84	20.90	0.00	0.34	52.00	1588	565	1039	1170
10:04:00	0.00	0.87	21.50	0.00	0.00	52.00	1588	565	1039	1170
10:08:00	0.00	0.88	21.65	0.00	0.00	52.00	1615	565	1066	1200
10:12:00	0.00	0.88	21.35	0.00	0.00	52.00	1615	565	1066	1200
10:16:00	0.00	0.88	21.65	0.00	0.00	52.00	1615	565	1066	1200
10:20:00	0.00	0.89	21.60	0.00	0.00	52.00	1644	590	1093	1229
10:24:00	0.00	0.90	21.32	0.00	0.00	52.00	1644	590	1093	1229
10:28:00	0.00	0.90	21.65	0.00	0.00	52.00	1644	590	1093	1229
10:32:00	0.00	0.89	21.00	0.00	0.00	52.00	1644	616	1093	1229
10:36:00	0.00	0.89	21.65	0.00	0.00	52.00	1644	616	1119	1255
10:40:00	0.00	0.89	21.53	0.00	0.00	52.00	1644	616	1119	1255
10:44:00	0.00	0.88	21.65	0.00	0.00	52.00	1672	616	1119	1255
10:48:00	0.00	0.89	21.53	0.00	0.00	52.00	1672	642	1119	1281
10:52:00	0.00	0.00	18.42	0.00	0.00	36.80	1087	415	600	979
10:56:00	0.00	0.00	10.17	0.00	0.00	21.40	1113	413	824	944
11:00:00	0.00	0.00	9.52	0.00	0.00	21.40	1082	474	865	879
11:04:00	0.00	0.00	6.40	0.00	0.00	18.20	1055	431	819	843
11:08:00	0.00	0.00	6.40	0.00	0.00	18.20	1055	457	819	816
11:12:00	0.00	0.00	6.40	0.00	0.00	18.20	1022	457	819	785
11:16:00	0.00	0.00	6.40	0.00	0.00	18.20	991	457	819	757
11:20:00	0.00	0.00	6.14	0.00	0.00	18.20	962	457	793	727
11:24:00	0.00	0.00	3.06	0.00	0.00	18.20	932	425	657	697
11:28:00	0.00	0.00	0.00	0.00	0.00	18.20	979	425	701	697
11:32:00	0.00	0.00	0.00	0.00	0.00	18.20	979	425	671	668
11:36:00	0.00	0.00	0.00	0.00	0.00	18.20	979	425	671	640
11:40:00	0.00	0.00	0.00	0.00	0.00	18.20	979	425	671	640
11:44:00	0.00	0.00	2.96	0.00	0.00	18.20	952	425	724	640
11:48:00	0.00	0.00	2.96	0.00	0.44	18.20	916	425	724	640
11:52:00	0.00	0.38	5.96	0.00	0.42	18.20	916	425	724	640
11:56:00	0.00	0.63	13.10	0.00	0.44	21.10	984	425	724	751
12:00:00	0.00	0.76	17.30	0.00	0.42	29.70	1179	477	795	881

D101810.XLS

10/18/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	465	441	80	124	35.90	6.42	7.96	0	90	1
10:04:00	465	441	80	124	35.90	6.15	8.16	0	100	1
10:08:00	465	441	80	124	35.90	5.91	8.26	0	103	1
10:12:00	465	441	80	124	35.90	5.81	8.30	0	103	1
10:16:00	465	441	80	124	35.90	5.84	8.30	0	103	1
10:20:00	478	454	80	124	35.90	5.84	8.30	0	100	1
10:24:00	478	454	80	124	35.90	5.84	8.30	0	100	1
10:28:00	478	454	80	124	35.90	5.84	8.30	0	100	1
10:32:00	478	454	80	124	35.90	5.84	8.30	0	100	1
10:36:00	478	454	80	124	35.90	5.81	8.30	0	103	1
10:40:00	478	454	80	124	35.90	6.08	8.35	0	103	1
10:44:00	492	454	80	124	35.90	6.08	8.30	0	103	1
10:48:00	492	468	80	124	35.90	6.08	8.30	0	105	1
10:52:00	460	440	80	124	16.40	17.24	0.64	37	12	1
10:56:00	395	387	80	124	16.40	17.26	0.64	37	12	1
11:00:00	395	373	80	124	16.40	17.97	0.39	20	12	1
11:04:00	365	354	80	124	16.40	17.97	0.15	7	12	1
11:08:00	365	339	80	124	16.40	17.97	0.15	7	12	1
11:12:00	351	339	80	124	16.40	17.97	0.15	7	12	1
11:16:00	351	326	80	124	16.40	17.97	0.15	7	0	1
11:20:00	335	326	80	124	16.40	17.97	0.15	7	0	1
11:24:00	335	326	80	124	13.80	17.97	0.15	7	0	1
11:28:00	335	307	80	124	13.80	17.97	0.15	7	0	1
11:32:00	321	307	80	124	13.80	17.97	0.15	7	0	1
11:36:00	321	307	80	124	13.80	17.70	0.15	20	0	1
11:40:00	321	307	80	124	13.80	17.70	0.15	20	0	1
11:44:00	321	293	80	124	13.80	17.70	0.15	20	0	1
11:48:00	307	293	80	124	13.80	17.97	0.15	7	0	1
11:52:00	307	293	80	124	13.80	7.30	7.38	276	39	1
11:56:00	325	293	80	124	13.80	6.40	7.86	17	66	1
12:00:00	348	322	82	127	14.50	5.59	8.65	3	98	0

D101812.XLS

10/18/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.00	0.76	17.30	0.00	0.42	29.70	1179	477	795	881
12:04:00	0.00	0.79	19.56	0.00	0.40	36.30	1386	511	923	1014
12:08:00	0.00	0.81	20.93	0.00	0.50	49.20	1450	539	923	1014
12:12:00	0.00	0.83	20.96	0.00	0.62	51.90	1489	539	923	1014
12:16:00	0.00	0.85	20.83	0.00	0.60	51.90	1525	539	965	1042
12:20:00	0.00	0.86	20.37	0.00	0.60	51.90	1558	565	991	1071
12:24:00	0.00	0.87	20.72	0.00	0.60	60.70	1613	605	1055	1071
12:28:00	0.00	0.89	19.99	0.00	0.60	71.10	1613	605	1114	1039
12:32:00	0.00	0.91	18.73	0.00	0.60	78.70	1613	639	1114	1003
12:36:00	0.00	0.96	17.78	0.00	0.60	96.90	1580	667	1086	967
12:40:00	3.69	1.02	16.31	0.00	0.60	116.20	1514	724	1049	939
12:44:00	1.57	1.04	17.43	0.00	0.60	135.70	1483	752	1010	913
12:48:00	1.40	1.07	17.59	0.00	0.60	157.40	1483	786	979	913
12:52:00	1.27	1.03	16.72	0.00	0.60	160.50	1445	786	939	913
12:56:00	0.90	1.03	17.84	0.00	0.60	160.50	1383	812	904	913
13:00:00	0.81	1.01	17.71	0.00	0.60	156.40	1383	803	904	913
13:04:00	0.44	0.99	17.71	0.00	0.60	153.70	1412	803	904	913
13:08:00	0.97	0.98	17.39	0.00	0.60	153.70	1439	803	933	913
13:12:00	0.45	0.96	17.27	0.00	0.60	153.70	1464	803	933	944
13:16:00	0.34	0.95	17.48	0.00	0.50	150.80	1464	803	962	944
13:20:00	1.51	0.95	17.78	0.00	0.50	150.80	1495	803	1017	975
13:24:00	1.57	0.91	17.39	0.00	0.50	150.80	1483	833	998	975
13:28:00	0.71	0.82	17.55	0.00	0.50	150.80	1452	833	971	975
13:32:00	1.26	0.85	17.32	0.00	0.50	150.80	1489	833	971	975
13:36:00	1.02	0.88	17.71	0.00	0.50	150.80	1456	833	942	975
13:40:00	1.17	0.92	17.40	0.00	0.60	150.80	1484	833	990	975
13:44:00	1.26	0.98	17.03	0.00	0.90	157.10	1453	833	1018	1000
13:48:00	1.42	1.06	17.29	0.00	0.90	157.10	1453	833	981	1000
13:52:00	1.32	1.04	17.01	0.00	0.90	157.10	1453	833	952	1000
13:56:00	1.20	1.00	17.33	0.00	0.90	157.10	1455	833	960	1000
14:00:00	0.85	0.97	17.80	0.00	0.89	154.80	1429	810	925	996

[redacted]

D101812.XLS

10/18/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	348	322	82	127	14.50	5.59	8.65	3	98	0
12:04:00	369	341	82	127	28.20	2.96	10.06	3	164	0
12:08:00	421	390	82	127	40.30	3.30	9.82	3	217	0
12:12:00	435	409	82	127	43.00	3.57	9.62	3	242	0
12:16:00	454	424	82	127	43.00	3.57	9.62	3	257	0
12:20:00	454	437	82	127	43.00	3.83	9.62	3	257	0
12:24:00	480	452	82	127	54.40	3.93	9.38	3	274	0
12:28:00	493	475	82	127	64.30	3.83	9.38	3	322	0
12:32:00	526	490	82	127	74.00	3.79	9.38	3	354	0
12:36:00	559	522	82	127	92.00	3.54	9.52	3	420	0
12:40:00	580	555	82	152	112.10	3.22	9.87	3	476	0
12:44:00	605	585	82	152	131.70	2.88	9.87	3	508	0
12:48:00	633	615	82	152	153.50	3.18	9.62	3	3	0
12:52:00	633	629	82	152	156.20	3.18	9.62	3	584	0
12:56:00	647	629	82	152	156.20	3.18	9.87	3	620	0
13:00:00	647	629	82	178	150.30	3.59	9.57	3	591	0
13:04:00	647	629	82	178	147.70	3.59	9.57	3	596	0
13:08:00	660	643	82	178	147.70	3.64	9.33	3	603	0
13:12:00	660	643	82	178	147.70	3.66	9.33	3	606	0
13:16:00	673	659	82	178	147.70	3.59	9.33	3	618	0
13:20:00	673	659	82	178	147.70	3.57	9.33	3	628	0
13:24:00	687	659	82	178	147.70	3.57	9.67	3	635	0
13:28:00	687	672	82	178	147.70	3.57	9.62	3	637	0
13:32:00	687	672	82	178	147.70	3.57	9.38	3	635	0
13:36:00	687	672	82	203	147.70	3.57	9.38	3	635	0
13:40:00	687	672	82	203	147.70	3.57	9.62	3	632	0
13:44:00	687	685	82	203	150.30	3.83	9.33	3	632	0
13:48:00	687	685	82	203	153.40	3.86	9.28	3	623	0
13:52:00	703	685	82	203	153.40	3.86	9.52	3	630	0
13:56:00	703	685	82	203	153.40	3.52	9.52	3	630	0
14:00:00	708	694	96	218	150.00	3.54	9.48	0	630	3

D101814.XLS

10/18/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.85	0.97	17.80	0.00	0.89	154.80	1429	810	925	996
14:04:00	0.98	0.68	15.56	0.00	0.91	154.80	1316	752	830	996
14:08:00	1.37	0.61	14.29	0.00	0.91	156.10	1390	840	1002	971
14:12:00	0.91	0.69	13.56	0.00	0.90	165.00	1308	840	941	906
14:16:00	1.39	0.89	13.30	0.00	0.89	169.30	1241	769	856	906
14:20:00	1.27	0.67	14.15	0.00	0.89	157.20	1200	737	823	906
14:24:00	1.22	0.69	14.15	0.00	0.90	150.10	1215	737	848	906
14:28:00	1.45	0.73	13.82	0.00	0.90	146.70	1280	774	895	906
14:32:00	1.21	0.86	13.82	0.00	0.90	150.10	1319	801	937	906
14:36:00	1.53	0.93	13.44	0.00	0.90	152.70	1319	801	937	906
14:40:00	1.70	0.85	13.44	0.00	0.90	155.80	1269	801	891	906
14:44:00	1.45	0.59	13.36	0.00	0.90	155.80	1243	801	891	880
14:48:00	1.89	0.74	15.17	0.00	0.89	163.70	1273	801	891	880
14:52:00	1.79	0.98	16.67	0.00	0.89	163.70	1282	760	891	880
14:56:00	1.69	0.91	16.24	0.00	0.90	151.10	1154	671	816	906
15:00:00	2.39	0.00	3.06	0.00	0.00	78.80	728	412	440	850
15:04:00	2.16	0.00	0.00	0.00	0.00	17.70	876	354	492	883
15:08:00	1.90	0.00	0.00	0.00	0.00	17.70	967	533	600	849
15:12:00	0.32	0.00	0.00	0.00	0.00	17.70	997	566	634	659
15:16:00	0.05	0.00	0.00	0.00	0.00	17.70	1022	597	666	628
15:20:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	570
15:24:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	541
15:28:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	515
15:32:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	515
15:36:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	487
15:40:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	459
15:44:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	459
15:48:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	431
15:52:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	431
15:56:00	0.00	0.00	0.00	0.00	0.00	17.70	1022	597	692	405
16:00:00	0.01	0.00	0.00	0.00	0.00	15.50	1002	599	712	385

D101814.XLS

10/18/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	708	694	96	218	150.00	3.54	9.48	0	630	3
14:04:00	708	694	96	218	150.00	3.86	9.28	0	596	3
14:08:00	708	694	96	218	152.30	4.03	9.43	0	481	3
14:12:00	688	694	96	218	161.10	5.25	8.65	0	398	3
14:16:00	688	694	96	218	165.20	2.74	10.26	0	239	3
14:20:00	688	681	96	218	151.90	2.25	10.31	0	225	3
14:24:00	688	681	96	218	144.60	2.52	10.31	0	354	3
14:28:00	688	681	96	218	141.20	2.86	10.06	0	423	3
14:32:00	688	681	96	218	144.70	2.42	10.11	0	408	3
14:36:00	688	681	96	218	148.00	2.42	10.45	0	303	3
14:40:00	688	681	96	218	150.70	1.88	10.79	0	213	3
14:44:00	688	681	96	218	150.70	4.05	9.28	0	496	3
14:48:00	675	667	96	218	158.20	5.52	8.35	0	398	3
14:52:00	675	667	96	218	158.20	3.98	9.28	0	513	3
14:56:00	675	667	96	218	143.70	2.88	10.01	0	430	3
15:00:00	599	613	96	218	73.10	11.06	3.67	37	88	3
15:04:00	517	516	96	218	14.80	7.42	6.30	64	127	3
15:08:00	517	502	96	218	14.80	14.09	3.32	39	127	3
15:12:00	503	487	96	218	14.80	16.41	1.86	25	105	3
15:16:00	489	487	96	192	14.80	17.80	0.59	10	47	3
15:20:00	473	467	96	192	14.80	18.14	0.25	10	32	3
15:24:00	473	453	96	192	14.80	18.14	0.25	10	20	3
15:28:00	458	453	96	192	14.80	18.14	0.00	10	20	3
15:32:00	458	439	96	192	14.80	18.14	0.00	10	20	3
15:36:00	445	439	96	192	14.80	18.14	0.00	10	20	3
15:40:00	445	425	96	192	14.80	18.14	0.00	10	7	3
15:44:00	445	425	96	192	14.80	18.14	0.00	10	7	3
15:48:00	431	412	96	192	14.80	18.14	0.00	10	7	3
15:52:00	431	412	96	192	14.80	18.14	0.00	10	7	3
15:56:00	431	412	96	192	14.80	18.14	0.00	10	7	3
16:00:00	418	405	111	171	13.70	18.19	0.00	3	7	0

D101816.XLS

10/18/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.01	0.00	0.00	0.00	0.00	15.50	1002	599	712	385
16:04:00	0.01	0.00	0.00	0.00	0.00	0.00	1002	599	712	385
16:08:00	0.01	0.00	0.00	0.00	0.00	0.00	1002	599	712	385
16:12:00	0.01	0.00	0.00	0.00	0.00	0.00	1002	599	712	358
16:16:00	0.01	0.00	0.00	0.00	0.00	0.00	1002	599	712	358
16:20:00	0.01	0.00	0.00	0.00	0.00	0.00	976	599	712	358
16:24:00	0.01	0.00	0.00	0.00	0.00	0.00	976	599	712	332
16:28:00	0.01	0.00	0.00	0.00	0.00	0.00	976	599	712	332
16:32:00	0.01	0.00	0.00	0.00	0.00	0.00	976	599	712	332
16:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
16:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D101816.XLS

10/18/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	418	405	111	171	13.70	18.19	0.00	3	7	0
16:04:00	418	405	111	171	13.70	18.19	0.00	3	7	0
16:08:00	418	405	111	171	13.70	18.19	0.00	3	7	0
16:12:00	418	392	111	171	13.70	18.19	0.00	3	7	0
16:16:00	418	392	111	171	13.70	18.19	0.00	3	7	0
16:20:00	404	392	111	171	13.70	18.19	0.00	3	7	0
16:24:00	404	392	111	171	13.70	18.19	0.00	3	7	0
16:28:00	404	392	111	171	13.70	8.94	0.00	3	7	0
16:32:00	404	379	111	171	13.70	8.94	0.00	3	7	0
16:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
16:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
19:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D102208.XLS

10/22/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.07	0.19	3.30	0.00	0.00	16.00	95	86	92	87
8:36:00	0.11	0.26	7.11	0.00	0.00	16.00	128	86	92	117
8:40:00	0.11	0.29	8.06	0.00	0.00	16.00	209	86	92	173
8:44:00	0.03	0.35	9.74	0.00	0.00	18.80	311	86	121	240
8:48:00	0.11	0.47	12.05	0.00	0.00	18.80	386	86	151	325
8:52:00	0.12	0.58	13.64	0.00	0.00	21.80	529	86	179	447
8:56:00	0.04	0.57	14.78	0.00	0.00	21.80	618	86	242	522
9:00:00	0.09	0.62	14.78	0.00	0.00	21.80	693	111	271	597
9:04:00	0.03	0.69	16.79	0.00	0.00	25.50	818	111	335	644
9:08:00	0.07	0.72	18.87	0.00	0.00	28.40	917	111	407	721
9:12:00	0.07	0.90	20.68	0.00	0.00	31.10	987	139	488	830
9:16:00	0.10	0.97	20.42	0.00	0.00	31.10	1026	139	517	897
9:20:00	0.11	1.00	20.30	0.00	0.00	31.10	1026	139	580	926
9:24:00	0.05	0.82	21.25	0.00	0.00	31.10	990	139	580	960
9:28:00	0.10	0.71	20.29	0.00	0.00	31.10	990	139	891	988
9:32:00	0.10	0.74	20.80	0.00	0.00	31.10	990	325	933	988
9:36:00	0.06	0.81	21.03	0.00	0.00	31.10	977	381	965	1030
9:40:00	0.06	0.86	20.94	0.00	0.00	31.10	618	381	965	1030
9:44:00	0.06	0.86	20.49	0.00	0.00	28.40	1385	381	992	1030
9:48:00	0.06	0.68	20.24	0.00	0.00	28.40	1413	381	992	1030
9:52:00	0.11	0.73	19.68	0.00	0.00	31.10	1449	409	992	1030
9:56:00	0.05	0.84	19.96	0.00	0.00	31.10	1449	409	1025	1067
10:00:00	0.04	0.81	20.80	0.00	0.00	32.70	1468	431	1024	1074

D102208.XLS

10/22/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	82	83	71	73	13.80	13.11	0.39	125	0	1
8:36:00	82	83	71	73	13.80	4.91	6.79	1000	147	1
8:40:00	100	97	71	73	13.80	5.47	7.82	1000	183	1
8:44:00	116	111	71	73	13.80	4.57	8.69	562	276	1
8:48:00	150	144	71	73	13.80	5.79	8.11	166	237	1
8:52:00	185	165	71	73	13.80	3.88	9.28	61	369	1
8:56:00	198	183	71	73	13.80	3.42	9.62	27	447	1
9:00:00	212	196	71	73	13.80	3.49	9.48	15	457	1
9:04:00	226	210	71	73	13.80	3.13	9.77	15	493	1
9:08:00	247	225	71	73	13.80	4.08	9.18	0	476	1
9:12:00	284	256	71	73	13.80	3.40	9.72	0	579	1
9:16:00	300	273	71	73	13.80	2.61	10.16	0	691	1
9:20:00	315	291	71	73	13.80	2.88	9.96	0	664	1
9:24:00	315	291	71	73	13.80	2.96	10.01	0	686	1
9:28:00	315	291	71	73	13.80	2.08	10.35	0	696	1
9:32:00	315	291	71	73	13.80	2.30	10.45	0	698	1
9:36:00	329	306	71	73	13.80	4.45	9.23	0	493	1
9:40:00	329	306	71	73	13.80	2.54	10.26	0	669	1
9:44:00	329	306	71	73	13.80	2.44	10.31	5	672	1
9:48:00	342	306	71	73	16.90	2.81	10.11	5	681	1
9:52:00	342	306	71	73	16.90	3.71	9.52	5	589	1
9:56:00	342	320	71	73	16.90	4.62	8.94	5	481	1
10:00:00	360	333	73	98	17.90	4.64	8.89	0	488	1

D102210.XLS

10/22/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.04	0.81	20.80	0.00	0.00	32.70	1468	431	1024	1074
10:04:00	0.05	0.70	20.24	0.00	0.00	32.70	1468	431	1024	1074
10:08:00	0.05	0.73	20.63	0.00	0.00	32.70	1496	431	1024	1104
10:12:00	0.05	0.78	20.12	0.00	0.00	32.70	1529	442	1049	1132
10:16:00	0.06	0.85	20.24	0.00	0.00	32.70	1529	472	1077	1132
10:20:00	0.12	0.86	20.62	0.00	0.00	32.70	1529	472	1077	1132
10:24:00	0.11	0.80	19.67	0.00	0.00	32.70	1559	472	1077	1132
10:28:00	0.10	0.75	20.67	0.00	0.00	32.70	1559	472	1109	1166
10:32:00	0.05	0.73	20.10	0.00	0.00	32.70	1600	505	1148	1200
10:36:00	0.10	0.76	19.15	0.00	0.00	40.90	1600	505	1148	1149
10:40:00	0.05	0.81	18.81	0.00	0.00	40.90	1600	530	1148	1119
10:44:00	0.12	0.87	18.00	0.00	0.00	40.90	1600	530	1148	1119
10:48:00	0.11	0.84	18.81	0.00	0.00	43.50	1630	530	1148	1119
10:52:00	0.04	0.77	17.26	0.00	0.00	43.50	1630	530	1148	1119
10:56:00	0.06	0.75	17.62	0.00	0.00	47.50	1630	577	1237	1119
11:00:00	0.04	0.79	16.77	0.00	0.00	50.70	1630	577	1237	1090
11:04:00	0.12	0.91	16.66	0.00	0.00	50.70	1630	577	1237	1090
11:08:00	0.07	0.85	16.66	0.00	0.00	50.70	1630	577	1237	1090
11:12:00	0.11	0.82	16.73	0.00	0.00	58.50	1656	629	1237	1090
11:16:00	0.11	0.75	16.73	0.00	0.00	58.50	1656	599	1189	1090
11:20:00	0.07	0.80	16.73	0.00	0.00	58.50	1656	599	1189	1090
11:24:00	0.09	0.89	16.66	0.00	0.00	58.50	1656	599	1221	1090
11:28:00	0.09	0.90	17.03	0.00	0.00	58.50	1656	627	1221	1090
11:32:00	0.14	0.86	17.03	0.00	0.00	58.50	1690	627	1221	1118
11:36:00	0.13	0.74	17.00	0.00	0.00	58.50	1690	627	1228	1118
11:40:00	0.10	0.79	16.73	0.00	0.00	58.50	1690	627	1228	1118
11:44:00	0.15	0.84	16.73	0.00	0.00	58.50	1715	627	1259	1118
11:48:00	0.10	0.95	16.73	0.00	0.00	58.50	1715	653	1259	1148
11:52:00	0.10	0.89	16.73	0.00	0.00	58.50	1715	653	1259	1148
11:56:00	0.14	0.84	17.07	0.00	0.00	58.50	1715	653	1259	1148
12:00:00	0.15	0.76	16.76	0.00	0.00	58.60	1732	666	1254	1170

D102210.XLS

10/22/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	360	333	73	98	17.90	4.64	8.89	0	488	1
10:04:00	360	333	73	98	17.90	3.91	9.23	0	598	1
10:08:00	360	333	73	98	17.90	3.44	9.72	0	659	1
10:12:00	360	333	73	98	17.90	3.91	9.43	0	598	1
10:16:00	360	346	73	98	17.90	4.40	9.09	0	532	1
10:20:00	373	346	73	98	17.90	4.32	9.13	0	549	1
10:24:00	373	346	73	98	17.90	3.20	9.82	0	703	1
10:28:00	373	346	73	98	17.90	3.22	10.06	0	713	1
10:32:00	373	363	73	98	25.10	4.03	9.33	0	593	1
10:36:00	406	363	73	98	28.20	3.57	9.67	0	698	1
10:40:00	406	384	73	98	30.90	4.23	9.23	0	603	1
10:44:00	423	397	73	98	30.90	4.62	8.94	0	552	1
10:48:00	423	397	73	98	30.90	4.08	9.33	0	611	1
10:52:00	423	397	73	98	30.90	3.49	9.67	0	774	1
10:56:00	430	411	73	98	39.70	3.57	9.62	0	779	1
11:00:00	447	428	73	98	42.70	3.79	9.52	0	796	1
11:04:00	447	428	73	98	42.70	4.03	9.33	0	186	1
11:08:00	447	428	73	98	42.70	3.96	9.38	0	195	1
11:12:00	463	444	73	123	52.90	3.66	9.38	0	215	1
11:16:00	477	459	73	123	52.90	3.47	9.67	0	249	1
11:20:00	477	459	73	123	50.30	3.93	9.33	0	220	1
11:24:00	477	459	73	123	50.30	4.18	9.23	0	198	1
11:28:00	477	459	73	123	50.30	3.81	9.43	0	225	1
11:32:00	477	474	73	123	50.30	3.59	9.57	0	257	1
11:36:00	495	474	73	123	50.30	3.20	9.82	0	269	1
11:40:00	495	474	73	123	50.30	3.32	9.77	0	259	1
11:44:00	495	474	73	123	50.30	3.66	9.52	0	230	1
11:48:00	495	474	73	123	50.30	3.93	9.38	0	220	1
11:52:00	495	488	73	123	50.30	3.74	9.48	0	237	1
11:56:00	495	488	73	123	50.30	3.35	9.72	0	264	1
12:00:00	507	490	76	142	50.90	3.22	9.87	0	271	1

D102212.XLS

10/22/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.15	0.76	16.76	0.00	0.00	58.60	1732	666	1254	1170
12:04:00	0.08	0.80	16.76	0.00	0.00	58.60	1732	666	1254	1170
12:08:00	0.09	0.87	16.76	0.00	0.00	58.60	1732	666	1286	1170
12:12:00	0.14	0.93	16.76	0.00	0.00	58.60	1732	666	1286	1170
12:16:00	0.15	0.87	16.76	0.00	0.00	58.60	1732	666	1286	1170
12:20:00	0.10	0.74	16.76	0.00	0.00	58.60	1758	666	1288	1170
12:24:00	0.16	0.77	16.76	0.00	0.00	58.60	1758	666	1278	1170
12:28:00	0.11	0.84	16.76	0.00	0.00	58.60	1758	692	1278	1197
12:32:00	0.17	0.95	17.03	0.00	0.00	58.60	1758	692	1334	1197
12:36:00	0.10	0.89	16.74	0.00	0.00	58.60	1758	692	1330	1197
12:40:00	0.10	0.79	16.74	0.00	0.00	58.60	1758	692	1301	1226
12:44:00	0.16	0.77	16.74	0.00	0.00	58.60	1758	692	1277	1226
12:48:00	0.10	0.83	16.74	0.00	0.00	58.60	1784	692	1277	1226
12:52:00	0.10	0.96	16.74	0.00	0.00	58.60	1784	721	1326	1226
12:56:00	0.10	0.89	16.74	0.00	0.00	58.60	1784	721	1310	1226
13:00:00	0.10	0.82	16.74	0.00	0.00	58.60	1784	721	1252	1256
13:04:00	0.11	0.77	17.02	0.00	0.00	58.60	1784	721	1296	1256
13:08:00	0.11	0.83	17.02	0.00	0.00	58.60	1784	721	1270	1256
13:12:00	0.06	0.96	17.02	0.00	0.00	58.60	1784	721	1270	1256
13:16:00	0.06	0.89	17.02	0.00	0.00	58.60	1784	721	1236	1256
13:20:00	0.06	0.74	16.73	0.00	0.00	58.60	1812	721	1185	1283
13:24:00	0.06	0.78	16.73	0.00	0.00	58.60	1812	721	1301	1283
13:28:00	0.06	0.86	16.73	0.00	0.00	58.60	1812	750	1308	1283
13:32:00	0.06	0.93	16.73	0.00	0.00	58.60	1812	750	1344	1311
13:36:00	0.01	0.86	16.99	0.00	0.00	58.60	1812	750	1336	1311
13:40:00	0.02	0.76	16.99	0.00	0.00	58.60	1782	750	1337	1361
13:44:00	0.02	0.82	16.99	0.00	0.00	58.60	1782	750	1309	1324
13:48:00	0.02	0.95	16.99	0.00	0.00	58.60	1782	750	1311	1377
13:52:00	0.02	0.89	16.73	0.00	0.00	58.60	1782	750	1311	1383
13:56:00	0.07	0.73	16.73	0.00	0.00	58.60	1782	750	1311	1394
14:00:00	0.03	0.78	16.83	0.00	0.00	59.40	1796	759	1298	1358

D102212.XLS

10/22/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	507	490	76	142	50.90	3.22	9.87	0	271	1
12:04:00	507	490	76	142	50.90	3.47	9.72	0	249	1
12:08:00	507	490	76	142	50.90	3.88	9.43	0	222	1
12:12:00	507	490	76	142	50.90	3.98	9.33	0	220	1
12:16:00	507	505	76	142	50.90	3.52	9.67	0	249	1
12:20:00	521	505	76	142	50.90	3.30	9.77	0	271	1
12:24:00	521	505	76	142	50.90	3.32	9.77	0	261	1
12:28:00	521	505	76	142	50.90	3.81	9.67	0	225	1
12:32:00	521	505	76	142	50.90	4.01	9.33	0	215	1
12:36:00	521	505	76	142	50.90	3.66	9.52	0	247	1
12:40:00	535	519	76	142	50.90	3.32	9.77	0	276	1
12:44:00	548	535	76	142	50.90	3.32	9.77	0	271	1
12:48:00	548	535	76	142	50.90	3.52	9.67	0	239	1
12:52:00	562	549	76	142	50.90	4.05	9.33	0	220	1
12:56:00	577	549	76	142	50.90	3.79	9.43	0	242	1
13:00:00	577	565	76	142	50.90	3.40	9.72	0	271	1
13:04:00	577	549	76	142	50.90	3.30	9.82	0	276	1
13:08:00	577	549	76	142	50.90	3.47	9.48	0	249	1
13:12:00	590	549	76	142	50.90	4.05	9.33	0	222	1
13:16:00	590	562	76	142	50.90	3.69	9.48	0	249	1
13:20:00	572	562	76	142	50.90	3.25	9.82	0	278	1
13:24:00	572	562	76	168	50.90	3.22	9.87	0	276	1
13:28:00	572	562	76	168	50.90	3.81	9.72	0	235	1
13:32:00	585	562	76	168	50.90	3.96	9.33	0	227	1
13:36:00	585	562	76	168	50.90	3.35	9.52	0	271	1
13:40:00	585	562	76	168	50.90	3.10	9.92	0	291	1
13:44:00	585	562	76	168	50.90	3.69	9.72	0	249	1
13:48:00	585	562	264	137	50.90	3.93	9.43	0	230	1
13:52:00	585	562	229	163	50.90	3.69	9.52	0	252	1
13:56:00	585	562	229	238	50.90	3.13	9.77	0	291	1
14:00:00	594	565	241	242	50.90	3.10	9.96	0	288	1

D102214.XLS

10/22/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.03	0.78	16.83	0.00	0.00	59.40	1796	759	1298	1358
14:04:00	0.03	0.86	16.83	0.00	0.00	59.40	1792	732	1298	1330
14:08:00	0.03	0.92	16.83	0.00	0.00	59.40	1792	328	1299	1363
14:12:00	0.07	0.86	16.83	0.00	0.00	59.40	1792	770	1294	1407
14:16:00	0.08	0.76	16.83	0.00	0.00	59.40	1792	770	1285	1391
14:20:00	0.07	0.82	16.83	0.00	0.00	59.40	1792	770	1338	1391
14:24:00	0.07	0.27	16.83	0.00	0.00	59.40	1725	717	1163	1350
14:28:00	0.07	0.00	3.14	3.93	0.00	22.30	1260	479	717	1249
14:32:00	0.07	0.00	3.14	3.93	0.00	19.30	1411	597	1104	1224
14:36:00	0.03	0.00	0.01	0.00	0.00	16.40	1377	572	1020	1150
14:40:00	0.07	0.00	0.01	0.00	0.00	16.40	1345	572	968	1003
14:44:00	0.02	0.00	0.01	0.00	0.00	16.40	1345	572	1038	901
14:48:00	0.08	0.00	0.01	0.00	0.00	16.40	1345	572	1134	1045
14:52:00	0.07	0.00	0.01	0.00	0.00	16.40	1318	572	1093	1017
14:56:00	0.03	0.00	0.01	0.00	0.00	16.40	1291	572	1122	1044
15:00:00	0.03	0.00	3.95	0.00	0.41	16.40	1281	572	1122	1044
15:04:00	0.03	0.32	4.83	0.00	0.33	16.40	1281	572	1086	1044
15:08:00	0.03	0.27	6.71	0.00	0.00	16.40	1281	572	1086	1044
15:12:00	0.11	0.33	8.06	0.00	0.31	19.20	1281	572	1093	1016
15:16:00	0.11	0.48	9.50	0.00	0.32	22.00	1281	572	1093	1016
15:20:00	2.77	0.58	11.19	0.00	0.31	22.00	1342	545	1129	1045
15:24:00	0.00	0.74	16.38	0.00	0.00	29.60	1440	578	1265	1152
15:28:00	0.00	0.68	16.97	0.00	0.00	32.20	1468	604	1293	1181
15:32:00	0.00	0.69	17.08	0.00	0.38	32.20	1432	604	1293	1216
15:36:00	4.00	0.74	16.75	0.00	0.39	32.20	1432	604	1319	1248
15:40:00	2.77	0.79	17.15	0.00	0.38	32.20	1432	604	1319	1280
15:44:00	2.57	0.88	16.76	0.00	0.38	32.20	1432	604	1346	1280
15:48:00	0.93	0.84	16.91	0.00	0.39	35.00	1432	604	1352	1280
15:52:00	0.97	0.85	18.36	0.00	0.38	35.00	1477	642	1362	1312
15:56:00	0.98	0.97	19.76	0.00	0.39	37.80	1516	670	1435	1343
16:00:00	1.52	1.00	19.46	0.00	0.39	39.60	1569	666	1448	1397

D102214.XLS

10/22/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	594	565	241	242	50.90	3.10	9.96	0	288	1
14:04:00	594	565	241	242	50.90	3.66	9.82	0	252	1
14:08:00	594	565	241	242	50.90	3.93	9.38	0	235	1
14:12:00	594	565	269	267	50.90	3.35	9.72	0	271	1
14:16:00	594	565	269	267	50.90	3.00	10.01	0	300	1
14:20:00	594	565	269	267	50.90	3.37	9.82	0	276	1
14:24:00	594	565	269	267	50.90	3.81	9.48	0	247	1
14:28:00	490	487	234	267	15.00	14.02	2.49	39	83	1
14:32:00	490	464	234	234	15.00	14.38	0.69	17	34	1
14:36:00	473	435	234	234	15.00	11.75	9.33	88	608	1
14:40:00	459	435	234	234	15.00	14.38	3.81	34	208	1
14:44:00	459	435	234	234	15.00	14.38	1.03	5	47	1
14:48:00	459	435	234	234	15.00	9.35	11.19	100	686	1
14:52:00	459	435	234	234	15.00	8.62	17.97	147	1000	1
14:56:00	445	419	234	234	15.00	14.26	8.06	112	669	1
15:00:00	445	419	234	234	15.00	14.26	0.20	78	15	1
15:04:00	445	419	234	234	15.00	5.06	8.60	78	44	1
15:08:00	432	419	234	234	15.00	5.13	8.50	15	71	1
15:12:00	432	400	234	234	15.00	5.18	8.50	0	83	1
15:16:00	432	400	234	234	15.00	5.35	8.65	0	98	1
15:20:00	432	400	260	234	15.00	3.27	9.82	0	117	1
15:24:00	447	418	260	234	15.00	3.52	9.48	115	90	1
15:28:00	460	437	260	260	15.00	4.37	9.09	7	137	1
15:32:00	460	452	260	260	15.00	4.13	9.23	7	149	1
15:36:00	473	452	260	260	15.00	4.23	9.23	7	152	1
15:40:00	473	452	260	287	15.00	5.25	8.74	7	117	1
15:44:00	473	452	260	287	15.00	5.86	8.26	7	98	1
15:48:00	487	468	260	287	15.00	5.84	8.21	7	100	1
15:52:00	502	468	260	287	15.00	5.76	8.26	7	105	1
15:56:00	516	482	260	287	15.00	4.88	8.84	7	149	1
16:00:00	522	484	234	310	16.00	4.01	9.28	0	188	0

D102216.XLS

10/22/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	1.52	1.00	19.46	0.00	0.39	39.60	1569	666	1448	1397
16:04:00	1.52	1.01	19.46	0.00	0.55	39.60	1614	696	1479	1423
16:08:00	1.49	1.05	19.46	0.00	0.54	39.60	1646	696	1520	1423
16:12:00	1.56	1.09	19.46	0.00	0.54	39.60	1643	675	1496	1423
16:16:00	1.46	1.11	19.40	0.00	0.54	62.30	1798	738	1629	1448
16:20:00	1.56	1.10	20.51	0.00	0.54	90.10	1798	794	1487	1343
16:24:00	1.45	1.03	20.51	0.00	0.54	138.80	1754	891	1375	1244
16:28:00	1.08	1.01	19.37	0.00	0.50	161.80	1634	920	1288	1179
16:32:00	1.12	0.97	19.50	0.00	0.40	158.00	1371	875	1220	1150
16:36:00	1.32	0.96	19.50	0.00	0.40	155.30	1451	905	1220	1150
16:40:00	1.83	0.93	19.49	0.00	0.40	152.70	1405	876	1190	1150
16:44:00	2.09	0.94	19.39	0.00	0.40	152.70	1433	876	1190	1124
16:48:00	2.10	0.98	19.65	0.00	0.40	152.70	1431	876	1162	1124
16:52:00	2.10	1.02	19.65	0.00	0.39	152.70	1433	906	1162	1124
16:56:00	2.08	1.05	19.65	0.00	0.38	152.70	1463	906	1162	1124
17:00:00	2.39	1.09	20.04	0.00	0.45	147.10	1550	923	1220	1164
17:04:00	1.29	1.10	19.68	0.00	0.38	150.30	1446	923	1177	1164
17:08:00	0.59	1.11	19.68	0.00	0.39	153.70	1544	965	1232	1164
17:12:00	0.46	1.12	19.30	0.00	0.41	153.70	1540	965	1231	1196
17:16:00	0.63	1.06	19.57	0.00	0.50	153.70	1572	965	1231	1196
17:20:00	1.07	1.05	19.46	0.00	0.45	156.80	1577	965	1252	1196
17:24:00	1.13	0.00	0.00	0.00	0.41	72.80	871	390	620	1066
17:28:00	3.76	0.00	0.00	0.00	0.39	22.10	965	416	657	1066
17:32:00	0.15	0.00	0.00	0.00	0.00	17.90	1060	566	833	1097
17:36:00	0.00	0.00	0.00	0.00	0.00	17.90	1123	593	868	995
17:40:00	0.00	0.00	0.00	0.00	0.00	17.90	1191	646	933	882
17:44:00	0.00	0.00	0.00	0.00	0.00	17.90	1218	646	995	808
17:48:00	0.67	0.00	0.00	0.00	0.34	17.90	1218	646	1024	773
17:52:00	0.13	0.00	0.00	0.00	0.41	17.90	1244	672	1050	745
17:56:00	0.06	0.00	0.00	0.00	0.00	17.90	1244	672	1050	718
18:00:00	0.00	0.00	0.00	0.00	0.00	15.70	1252	669	1061	685

D102216.XLS

10/22/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	522	484	234	310	16.00	4.01	9.28	0	188	0
16:04:00	522	484	234	310	16.00	4.25	9.13	0	188	0
16:08:00	522	497	312	310	16.00	4.05	9.28	0	203	0
16:12:00	522	513	312	310	16.00	3.98	9.38	0	210	0
16:16:00	574	540	312	310	55.50	3.93	9.38	0	227	0
16:20:00	630	610	312	310	82.90	4.54	8.99	0	283	0
16:24:00	713	683	312	341	134.80	4.69	8.99	0	349	0
16:28:00	753	733	312	341	157.90	3.64	9.52	0	569	0
16:32:00	767	747	353	369	150.00	3.18	9.87	0	645	0
16:36:00	767	707	353	369	150.00	3.18	9.87	0	672	0
16:40:00	750	691	353	369	146.90	3.15	9.92	0	659	0
16:44:00	750	709	353	369	146.90	2.96	10.11	0	684	0
16:48:00	766	725	353	369	146.90	2.86	10.16	0	711	0
16:52:00	766	762	353	369	143.10	2.88	10.11	0	730	0
16:56:00	786	762	353	369	143.10	2.98	10.11	0	740	0
17:00:00	786	744	353	369	143.10	3.76	9.43	0	674	0
17:04:00	786	744	353	369	143.10	3.08	10.11	0	696	0
17:08:00	786	763	353	369	146.20	3.20	9.92	0	730	0
17:12:00	790	763	353	369	146.20	3.35	9.72	0	745	0
17:16:00	790	763	353	369	149.30	3.40	9.72	0	759	0
17:20:00	821	763	353	369	149.30	3.30	9.82	0	772	0
17:24:00	704	718	353	339	30.40	10.01	4.15	0	159	0
17:28:00	551	564	284	303	16.40	8.23	4.15	0	90	0
17:32:00	536	528	220	267	16.40	7.94	4.15	0	3	0
17:36:00	553	542	220	267	16.40	7.67	4.15	0	3	0
17:40:00	567	542	220	267	16.40	7.67	4.15	0	3	0
17:44:00	567	542	220	267	16.40	7.67	4.15	0	3	0
17:48:00	567	542	220	267	16.40	7.67	4.15	0	3	0
17:52:00	552	542	220	267	16.40	7.67	4.15	0	3	0
17:56:00	552	528	220	267	16.40	7.67	4.15	0	3	0
18:00:00	537	523	201	258	14.10	1.25	4.30	10	0	1

D102308.XLS

10/23/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:28:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:32:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:36:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
8:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
9:12:00	0.00	0.00	3.22	0.00	0.00	15.80	461	341	468	383
9:16:00	0.00	0.22	3.79	0.00	0.37	15.80	461	341	468	451
9:20:00	0.00	0.29	7.53	0.00	0.33	18.60	461	341	498	485
9:24:00	0.00	0.39	9.86	0.00	0.32	18.60	461	368	529	527
9:28:00	0.00	0.60	11.38	0.00	0.32	21.40	461	368	560	581
9:32:00	0.00	0.59	14.55	0.00	0.32	26.80	797	394	725	678
9:36:00	0.00	0.62	15.01	0.00	0.32	26.80	880	423	802	740
9:40:00	0.00	0.89	18.22	0.00	0.32	30.80	1009	451	896	836
9:44:00	0.04	0.91	17.77	0.00	0.32	30.80	1052	482	954	898
9:48:00	0.00	0.77	15.39	0.00	0.32	35.60	1185	521	952	892
9:52:00	0.00	0.58	14.56	0.00	0.32	38.70	1114	521	892	857
9:56:00	0.00	0.61	14.54	0.00	0.32	38.70	1114	521	892	857
10:00:00	0.03	0.78	14.19	0.00	0.32	36.30	1130	523	920	867

D102308.XLS

10/23/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:28:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:32:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:36:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
8:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
9:12:00	263	252	108	147	13.80	14.09	0.00	3	3	13
9:16:00	263	252	108	147	13.80	4.93	7.77	1000	15	13
9:20:00	263	252	108	147	13.80	5.74	7.86	1000	44	13
9:24:00	263	252	108	147	13.80	5.74	8.11	142	69	13
9:28:00	278	266	108	147	13.80	5.23	8.45	42	81	13
9:32:00	309	281	108	147	13.80	4.93	8.45	22	81	13
9:36:00	325	281	108	147	13.80	5.40	8.45	10	81	13
9:40:00	351	312	108	147	13.80	4.81	8.74	10	108	13
9:44:00	369	328	108	147	13.80	4.01	9.23	10	144	13
9:48:00	390	346	108	147	30.10	3.69	9.38	10	159	13
9:52:00	406	361	108	147	30.10	3.52	9.52	10	161	13
9:56:00	406	361	108	147	30.10	3.00	9.92	10	161	13
10:00:00	415	373	110	156	29.00	3.32	9.67	0	171	1

D102310.XLS

10/23/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.03	0.78	14.19	0.00	0.32	36.30	1130	523	920	867
10:04:00	0.03	0.56	14.24	0.00	0.32	36.30	1130	523	920	867
10:08:00	0.03	0.60	14.97	0.00	0.32	36.30	1162	523	920	892
10:12:00	0.03	0.75	14.50	0.00	0.32	36.30	1306	523	949	892
10:16:00	0.03	0.63	14.51	0.00	0.32	36.30	1336	523	975	892
10:20:00	0.03	0.58	14.20	0.00	0.32	36.30	1336	523	975	919
10:24:00	0.03	0.62	15.25	0.00	0.32	36.30	1364	552	1002	919
10:28:00	0.03	0.75	14.58	0.00	0.32	36.30	1364	552	1002	947
10:32:00	0.03	0.56	15.18	0.00	0.32	36.30	1364	552	1029	977
10:36:00	0.03	0.60	15.75	0.00	0.32	36.30	1397	552	1029	977
10:40:00	0.03	0.76	15.43	0.00	0.32	47.20	1432	606	1029	951
10:44:00	0.03	0.56	15.43	0.00	0.32	61.40	1404	646	1003	918
10:48:00	0.03	0.59	15.79	0.00	0.32	87.90	1336	673	977	864
10:52:00	0.03	0.65	15.44	0.00	0.32	109.20	1235	673	912	837
10:56:00	0.03	0.68	15.14	0.00	0.31	123.40	1205	704	874	837
11:00:00	.3	0.59	15.19	0.00	0.32	135.30	1173	704	874	811
11:04:00	0.03	0.64	15.45	0.00	0.32	148.70	1143	734	874	811
11:08:00	1.36	0.73	15.58	0.00	0.32	158.30	1143	734	845	811
11:12:00	4.00	0.57	15.46	0.00	0.31	158.30	1115	734	845	811
11:16:00	1.92	0.60	15.29	0.00	0.31	158.30	1081	734	845	811
11:20:00	1.37	0.64	15.30	0.00	0.33	155.60	1106	734	845	811
11:24:00	1.12	0.72	15.25	0.00	0.33	155.60	1106	734	845	811
11:28:00	0.55	0.58	15.27	0.00	0.33	155.60	1135	761	845	811
11:32:00	0.55	0.61	15.27	0.00	0.33	158.30	1135	761	845	811
11:36:00	0.38	0.76	15.27	0.00	0.33	160.90	1135	761	845	839
11:40:00	0.47	0.72	16.26	0.00	0.33	160.90	1103	761	845	839
11:44:00	0.00	0.58	15.62	0.00	0.33	157.50	1137	761	845	839
11:48:00	0.81	0.62	15.62	0.00	0.33	154.60	1137	761	845	839
11:52:00	0.00	0.76	15.62	0.00	0.33	154.60	1137	761	875	839
11:56:00	0.36	0.61	15.62	0.00	0.33	151.80	1137	761	875	839
12:00:00	0.43	0.58	15.54	0.00	0.33	150.90	1168	783	883	863

D102310.XLS

10/23/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	415	373	110	156	29.00	3.32	9.67	0	171	1
10:04:00	415	373	110	156	29.00	2.96	9.87	0	171	1
10:08:00	415	386	110	156	29.00	2.74	10.11	0	171	1
10:12:00	429	386	110	156	29.00	3.27	9.72	0	171	1
10:16:00	429	386	110	156	29.00	2.54	10.26	0	171	1
10:20:00	429	386	110	156	29.00	2.42	10.31	0	183	1
10:24:00	443	401	110	156	29.00	3.03	9.96	0	183	1
10:28:00	443	401	110	156	29.00	2.96	9.92	0	183	1
10:32:00	443	401	110	156	29.00	2.52	10.06	0	183	1
10:36:00	458	401	110	156	29.00	3.44	9.67	0	183	1
10:40:00	473	419	110	156	41.50	4.54	8.94	0	183	1
10:44:00	495	440	110	156	57.60	4.01	9.09	0	213	1
10:48:00	538	479	110	156	84.70	4.42	9.04	0	222	1
10:52:00	570	518	110	182	105.90	4.18	9.18	0	293	1
10:56:00	602	549	110	182	120.10	4.18	9.18	0	342	1
11:00:00	602	562	110	182	132.00	4.52	8.94	0	330	1
11:04:00	618	580	110	182	145.30	4.18	8.94	0	340	1
11:08:00	633	580	110	182	154.80	4.18	9.18	0	354	1
11:12:00	646	596	110	207	154.80	4.49	8.94	0	357	1
11:16:00	646	610	110	207	154.80	4.49	8.94	0	327	1
11:20:00	646	610	110	207	152.20	4.79	8.65	0	313	1
11:24:00	662	610	110	207	152.20	5.06	8.65	0	298	1
11:28:00	662	623	110	207	152.20	5.32	8.35	0	257	1
11:32:00	677	623	110	207	155.00	5.74	8.11	0	213	1
11:36:00	677	639	110	207	158.50	6.15	8.11	0	198	1
11:40:00	677	639	110	233	154.80	6.15	7.86	0	183	1
11:44:00	677	639	110	233	151.90	6.52	7.86	0	173	1
11:48:00	690	639	110	233	149.30	6.52	7.86	0	173	1
11:52:00	690	639	110	233	149.30	6.52	7.86	0	173	1
11:56:00	690	652	110	233	149.30	6.52	7.86	0	173	1
12:00:00	701	654	113	249	146.90	6.50	7.82	0	173	4

D102312.XLS

10/23/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.43	0.58	15.54	0.00	0.33	150.90	1168	783	883	863
12:04:00	0.40	0.60	15.54	0.00	0.32	150.90	1168	783	883	863
12:08:00	0.12	0.63	15.54	0.00	0.32	150.90	1168	783	883	863
12:12:00	0.29	0.74	15.54	0.00	0.31	150.90	1168	783	883	863
12:16:00	1.28	0.69	15.54	0.00	0.33	150.90	1142	783	883	863
12:20:00	0.38	0.59	15.54	0.00	0.32	147.90	1142	783	883	863
12:24:00	1.03	0.61	15.54	0.00	0.32	147.90	1186	783	883	863
12:28:00	0.00	0.00	2.99	0.00	0.31	107.60	573	393	440	818
12:32:00	0.00	0.00	0.00	0.00	0.31	24.20	573	360	414	818
12:36:00	0.06	0.00	0.00	0.00	0.00	17.40	818	519	601	818
12:40:00	0.00	0.00	0.00	0.00	0.00	17.40	818	519	627	660
12:44:00	0.05	0.00	0.00	0.00	0.00	17.40	818	519	627	595
12:48:00	0.00	0.00	0.00	0.00	0.00	17.40	818	547	654	565
12:52:00	0.00	0.00	0.00	0.00	0.00	17.40	818	547	654	533
12:56:00	0.00	0.00	0.00	0.00	0.00	17.40	843	547	654	504
13:00:00	0.00	0.00	2.91	0.00	0.39	17.40	877	580	747	745
13:04:00	0.00	0.30	8.21	0.00	0.32	17.40	908	580	803	788
13:08:00	0.00	0.50	13.65	0.00	0.31	24.30	1029	611	855	826
13:12:00	0.00	0.71	15.14	0.00	0.32	27.00	1077	611	938	888
13:16:00	0.00	0.72	21.65	0.00	0.32	36.80	1237	670	1019	1004
13:20:00	0.00	0.80	21.65	0.00	0.32	39.70	1294	670	1066	1079
13:24:00	0.00	0.86	21.65	0.00	0.34	39.70	1322	670	1133	1140
13:28:00	0.00	0.90	21.65	0.00	0.32	39.70	1357	697	1177	1171
13:32:00	0.00	0.91	21.18	0.00	0.32	60.70	1501	731	1238	1192
13:36:00	0.00	1.02	21.65	0.00	0.32	71.50	1531	765	1238	1164
13:40:00	0.00	1.02	21.07	0.00	0.33	71.50	1531	765	1238	1197
13:44:00	0.00	1.03	21.65	0.00	0.31	74.30	1531	765	1238	1230
13:48:00	0.00	1.05	21.65	0.00	0.31	74.30	1565	797	1277	1268
13:52:00	0.00	1.05	21.65	0.00	0.31	74.30	1565	797	1277	1268
13:56:00	0.00	1.03	21.65	0.00	0.32	74.30	1565	797	1304	1295
14:00:00	0.00	1.00	21.65	0.00	0.31	76.50	1584	799	1305	1321

D102312.XLS

10/23/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	701	654	113	249	146.90	6.50	7.82	0	173	4
12:04:00	701	654	113	249	146.90	6.50	7.82	0	173	4
12:08:00	701	654	113	249	146.90	6.76	7.82	0	159	4
12:12:00	701	654	113	249	146.90	6.76	7.82	0	171	4
12:16:00	701	654	113	249	146.90	6.50	7.82	0	171	4
12:20:00	714	669	113	249	144.10	6.50	7.82	0	159	4
12:24:00	714	669	113	249	144.10	6.50	7.82	0	159	4
12:28:00	683	669	113	249	101.10	8.99	5.67	0	95	4
12:32:00	608	586	113	249	14.70	8.60	3.86	39	34	4
12:36:00	573	547	113	249	14.70	13.94	2.20	20	54	4
12:40:00	556	532	113	249	14.70	13.94	2.64	20	69	4
12:44:00	543	516	113	249	14.70	13.94	0.59	7	32	4
12:48:00	543	501	113	249	14.70	13.94	0.05	7	20	4
12:52:00	530	501	113	249	14.70	13.94	0.05	7	20	4
12:56:00	516	487	113	249	14.70	13.94	0.05	7	20	4
13:00:00	516	472	113	249	14.70	13.94	1.86	39	42	4
13:04:00	501	472	113	249	14.70	4.71	8.74	51	73	4
13:08:00	501	472	113	249	14.70	5.98	8.11	3	73	4
13:12:00	501	472	113	249	14.70	6.84	7.62	3	56	4
13:16:00	537	472	113	249	14.70	6.54	8.01	3	73	4
13:20:00	537	472	113	249	14.70	5.74	8.30	3	95	4
13:24:00	523	472	113	249	14.70	5.67	8.35	3	100	4
13:28:00	523	472	113	224	14.70	4.96	8.74	3	127	4
13:32:00	544	495	113	224	49.20	5.23	8.55	3	134	4
13:36:00	577	532	113	224	59.40	5.03	8.55	3	191	4
13:40:00	577	550	113	224	59.40	5.03	8.79	3	203	4
13:44:00	593	567	113	224	59.40	5.03	8.79	3	217	4
13:48:00	593	567	113	224	62.00	5.03	8.79	3	217	4
13:52:00	593	567	113	224	62.00	5.03	8.79	3	195	4
13:56:00	607	580	113	224	62.00	5.03	8.79	3	193	4
14:00:00	599	586	120	214	63.50	5.13	8.65	3	200	4

D102314.XLS

10/23/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.00	1.00	21.65	0.00	0.31	76.50	1584	799	1305	1321
14:04:00	0.00	1.00	21.65	0.00	0.32	76.50	1584	799	1305	1321
14:08:00	0.00	0.97	21.65	0.00	0.32	76.50	1584	799	1305	1359
14:12:00	0.00	0.95	21.65	0.00	0.32	76.50	1584	799	1313	1359
14:16:00	0.00	0.96	21.65	0.00	0.32	76.50	1628	799	1311	1359
14:20:00	0.00	0.98	21.65	0.00	0.32	76.50	1628	826	1311	1359
14:24:00	0.00	1.02	21.65	0.00	0.33	76.50	1664	826	1310	1385
14:28:00	0.00	1.04	21.65	0.00	0.33	76.50	1664	826	1337	1385
14:32:00	0.00	1.04	21.65	0.00	0.32	76.50	1660	826	1342	1385
14:36:00	0.00	1.06	21.65	0.00	0.32	76.50	1660	826	1315	1385
14:40:00	0.00	1.05	21.65	0.00	0.32	76.50	1660	826	1340	1411
14:44:00	0.00	1.06	21.65	0.00	0.32	76.50	1660	826	1346	1411
14:48:00	0.00	1.08	21.65	0.00	0.32	76.50	1660	826	1371	1411
14:52:00	0.00	1.08	21.65	0.00	0.32	76.50	1692	826	1398	1411
14:56:00	0.00	1.09	21.65	0.00	0.33	76.50	1692	826	1386	1411
15:00:00	0.00	1.09	21.65	0.00	0.32	76.50	1692	826	1410	1411
15:04:00	0.00	1.09	21.65	0.00	0.32	76.50	1692	826	1419	1446
15:08:00	0.00	1.10	21.65	0.00	0.32	76.50	1692	826	1414	1446
15:12:00	0.00	1.10	21.65	0.00	0.32	76.50	1692	826	1420	1446
15:16:00	0.00	1.10	21.65	0.00	0.32	76.50	1724	826	1429	1473
15:20:00	0.00	1.10	21.65	0.00	0.32	76.50	1724	869	1415	1473
15:24:00	0.00	1.09	21.65	0.00	0.32	76.50	1728	869	1443	1473
15:28:00	0.00	1.08	21.65	0.00	0.32	76.50	1720	869	1449	1473
15:32:00	0.00	1.08	21.65	0.00	0.32	76.50	1720	869	1393	1473
15:36:00	0.00	1.08	21.65	0.00	0.32	76.50	1736	869	1436	1501
15:40:00	0.00	1.08	21.65	0.00	0.32	76.50	1736	869	1409	1501
15:44:00	0.00	1.09	21.65	0.00	0.32	76.50	1736	869	1393	1501
15:48:00	0.00	1.09	21.65	0.00	0.32	76.50	1736	869	1375	1501
15:52:00	0.00	1.09	21.65	0.00	0.32	76.50	1736	869	1447	1501
15:56:00	0.00	1.09	21.65	0.00	0.32	76.50	1736	869	1450	1501
16:00:00	0.00	1.08	21.65	0.00	0.32	100.10	1839	937	1520	1460

D102314.XLS

10/23/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	599	586	120	214	63.50	5.13	8.65	3	200	4
14:04:00	613	586	120	214	63.50	5.10	8.65	3	203	4
14:08:00	613	586	120	214	63.50	5.08	8.69	3	205	4
14:12:00	613	586	120	214	63.50	5.06	8.69	3	205	4
14:16:00	613	586	120	214	63.50	5.06	8.69	3	210	4
14:20:00	626	599	120	214	63.50	5.03	8.69	3	210	4
14:24:00	626	599	120	214	63.50	5.23	8.45	3	200	4
14:28:00	626	599	120	214	63.50	5.49	8.45	3	193	4
14:32:00	626	599	120	214	63.50	5.49	8.45	3	200	4
14:36:00	626	599	120	214	63.50	5.49	8.45	3	183	4
14:40:00	626	613	120	214	63.50	5.49	8.45	3	183	4
14:44:00	640	613	120	214	63.50	5.52	8.45	3	181	4
14:48:00	640	613	120	214	63.50	5.59	8.40	3	173	4
14:52:00	640	613	120	214	63.50	5.54	8.45	3	178	4
14:56:00	640	613	120	214	63.50	5.57	8.40	3	173	4
15:00:00	640	626	120	214	63.50	5.57	8.45	3	176	4
15:04:00	640	626	120	214	63.50	5.54	8.45	3	178	4
15:08:00	640	626	120	214	63.50	5.49	8.45	3	181	4
15:12:00	640	626	120	214	63.50	5.47	8.50	3	183	4
15:16:00	653	626	120	214	63.50	5.47	8.50	3	183	4
15:20:00	653	626	120	214	63.50	5.47	8.45	3	183	4
15:24:00	653	626	120	214	63.50	5.47	8.45	3	186	4
15:28:00	653	626	120	214	63.50	5.49	8.45	3	186	4
15:32:00	653	626	120	214	63.50	5.45	8.45	3	191	4
15:36:00	653	626	120	214	63.50	5.45	8.45	3	191	4
15:40:00	653	626	120	214	63.50	5.47	8.50	3	188	4
15:44:00	653	626	120	240	63.50	5.52	8.45	3	183	4
15:48:00	653	626	151	240	63.50	5.49	8.45	3	186	4
15:52:00	653	642	151	240	63.50	5.45	8.50	3	191	4
15:56:00	653	642	151	240	67.60	5.47	8.50	3	188	4
16:00:00	690	665	139	255	90.80	5.08	8.65	3	266	5

D102316.XLS

10/23/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.00	1.08	21.65	0.00	0.32	100.10	1839	937	1520	1460
16:04:00	0.00	1.08	21.65	0.00	0.32	106.40	1814	937	1487	1430
16:08:00	0.00	1.08	20.98	0.00	0.33	125.60	1847	968	1454	1396
16:12:00	0.00	1.08	19.50	0.00	0.32	155.90	1761	999	1378	1289
16:16:00	0.00	1.07	18.91	0.00	0.32	155.90	1735	999	1353	1289
16:20:00	3.49	1.06	18.85	0.00	0.32	155.90	1708	999	1353	1289
16:24:00	4.00	1.06	18.57	0.00	0.33	155.90	1676	999	1316	1263
16:28:00	0.50	1.05	18.84	0.00	0.32	155.90	1676	999	1316	1288
16:32:00	0.50	1.05	18.84	0.00	0.32	155.90	1712	999	1341	1288
16:36:00	0.72	1.04	18.84	0.00	0.32	155.90	1719	999	1342	1314
16:40:00	0.70	1.04	18.86	0.00	0.33	155.90	1698	969	1331	1314
16:44:00	0.68	0.98	18.86	0.00	0.32	155.90	1698	891	1397	1422
16:48:00	0.73	0.99	19.15	0.00	0.32	155.90	1730	948	1359	1345
16:52:00	0.76	0.99	19.01	0.00	0.33	155.90	1688	922	1359	1399
16:56:00	0.81	0.99	18.78	0.00	0.31	155.90	1688	952	1330	1332
17:00:00	0.04	0.97	19.19	0.00	0.33	155.90	1608	952	1340	1332
17:04:00	0.27	0.99	19.19	0.00	0.32	155.90	1662	952	1381	1332
17:08:00	0.37	0.98	19.33	0.00	0.31	155.90	1678	952	1381	1332
17:12:00	0.42	0.99	19.29	0.00	0.32	155.90	1678	952	1389	1332
17:16:00	0.46	0.98	19.32	0.00	0.32	155.90	1678	952	1383	1332
17:20:00	0.31	0.98	19.38	0.00	0.32	155.90	1678	952	1378	1332
17:24:00	0.43	0.98	19.42	0.00	0.31	153.30	1561	952	1294	1332
17:28:00	1.99	0.00	6.80	0.00	0.32	135.70	1108	615	850	1198
17:32:00	2.14	0.00	0.00	0.00	0.31	26.10	941	421	622	1208
17:36:00	0.56	0.00	0.00	0.00	0.31	17.90	1126	621	806	1176
17:40:00	0.00	0.00	0.00	0.00	0.00	17.90	1218	731	963	1176
17:44:00	0.02	0.00	0.00	0.00	0.00	17.90	1259	761	996	1102
17:48:00	0.02	0.00	0.00	0.00	0.00	17.90	1259	713	958	891
17:52:00	0.02	0.00	0.00	0.00	0.00	17.90	1259	740	985	820
17:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
18:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D102316.XLS

10/23/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	690	665	139	255	90.80	5.08	8.65	3	266	5
16:04:00	704	679	139	163	97.00	4.66	8.89	3	340	5
16:08:00	724	700	113	135	120.30	4.66	8.89	3	383	5
16:12:00	754	742	113	135	148.50	3.32	9.72	3	589	5
16:16:00	754	742	113	135	148.50	3.00	9.96	3	684	5
16:20:00	769	759	113	135	148.50	2.74	9.96	3	725	5
16:24:00	769	759	113	135	148.50	2.74	9.96	3	745	5
16:28:00	769	759	113	135	148.50	2.66	9.96	3	757	5
16:32:00	769	759	113	135	148.50	2.66	9.96	3	757	5
16:36:00	769	759	113	171	148.50	2.69	9.96	3	774	5
16:40:00	769	759	113	199	148.50	2.69	9.96	3	786	5
16:44:00	769	759	113	190	148.50	3.10	9.96	3	808	5
16:48:00	753	759	113	190	148.50	4.05	9.48	3	669	5
16:52:00	753	759	113	190	148.50	4.05	9.18	3	650	5
16:56:00	769	759	113	216	148.50	4.05	9.18	3	625	5
17:00:00	769	759	113	216	148.50	4.05	9.18	3	620	5
17:04:00	769	759	113	216	148.50	4.08	9.18	3	608	5
17:08:00	769	759	113	216	148.50	4.08	9.18	3	620	5
17:12:00	769	759	113	216	148.50	4.08	9.18	3	625	5
17:16:00	769	759	113	216	148.50	4.08	9.18	3	630	5
17:20:00	769	759	113	216	148.50	4.08	9.18	3	640	5
17:24:00	769	759	113	216	148.50	4.08	9.18	3	625	5
17:28:00	745	759	113	216	129.90	9.40	5.96	3	354	5
17:32:00	612	637	113	190	14.70	6.74	6.45	27	183	5
17:36:00	590	568	113	190	14.70	13.84	5.42	15	423	5
17:40:00	561	553	113	190	14.70	13.84	3.86	3	388	5
17:44:00	547	536	113	190	14.70	2.17	3.86	3	29	5
17:48:00	547	536	113	190	14.70	2.17	3.86	3	29	5
17:52:00	532	520	113	190	14.70	2.17	3.86	3	29	5
17:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
18:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D102810.XLS

10/28/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:04:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:08:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:12:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:16:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:20:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:24:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
10:28:00	0.00	0.21	4.56	0.00	0.33	16.90	2343	4882	1433	117
10:32:00	0.00	0.28	4.56	0.00	0.34	16.90	2343	4882	1433	117
10:36:00	0.00	0.33	6.44	0.00	0.33	16.90	2343	4882	1433	117
10:40:00	0.00	0.33	7.07	0.00	0.33	16.90	2343	4882	1433	117
10:44:00	0.00	0.33	7.07	0.00	0.33	16.90	2343	4882	1433	117
10:48:00	0.00	0.34	7.07	0.00	0.33	16.90	2343	4882	1433	117
10:52:00	0.00	0.37	8.39	0.00	0.33	20.10	2343	4882	1433	117
10:56:00	0.00	0.36	8.39	0.00	0.33	20.10	2343	4882	1433	117
11:00:00	0.00	0.59	9.49	0.00	0.33	20.10	2343	4882	1433	117
11:04:00	0.00	0.59	13.59	0.00	0.34	22.90	2343	4882	1433	117
11:08:00	0.00	0.74	15.83	0.00	0.34	28.40	2343	4882	1433	117
11:12:00	0.00	0.81	17.79	0.00	0.33	31.40	2343	4882	1433	117
11:16:00	0.00	0.74	18.29	0.00	0.33	31.40	2343	4882	1433	117
11:20:00	0.00	0.72	18.29	0.00	0.33	34.00	2343	4882	1433	117
11:24:00	0.00	0.73	17.57	0.00	0.33	34.00	2343	4882	1433	117
11:28:00	0.00	0.76	17.29	0.00	0.33	34.00	2343	4882	1433	117
11:32:00	0.00	0.78	18.16	0.00	0.34	34.00	2343	4882	1433	117
11:36:00	0.00	0.81	16.99	0.00	0.34	34.00	2343	4882	1433	117
11:40:00	0.00	0.91	17.61	0.00	0.34	34.00	2343	4882	1433	117
11:44:00	0.00	0.89	16.76	0.00	0.34	34.00	2343	4882	1433	738
11:48:00	0.00	0.87	17.34	0.00	0.34	34.00	2343	4882	1433	764
11:52:00	0.00	0.84	16.80	0.00	0.35	34.00	2343	4882	1433	792
11:56:00	0.00	0.73	16.80	0.00	0.34	34.00	2343	4882	1433	792
12:00:00	0.03	0.73	17.25	0.00	0.34	36.30	2343	4882	1433	831

D102810.XLS

10/28/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:04:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:08:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:12:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:16:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:20:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:24:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
10:28:00	59	58	54	56	14.00	15.38	0.39	125	0	4
10:32:00	88	76	54	56	14.00	5.28	7.86	1000	37	4
10:36:00	118	106	54	56	14.00	2.91	9.48	540	76	4
10:40:00	118	106	54	56	14.00	4.05	8.74	147	103	4
10:44:00	118	120	54	56	14.00	4.01	8.74	71	117	4
10:48:00	118	120	54	56	14.00	3.86	8.84	34	132	4
10:52:00	137	120	54	56	14.00	4.62	8.45	22	132	4
10:56:00	150	120	54	56	14.00	4.93	8.55	7	132	4
11:00:00	168	151	223	239	14.00	4.47	8.55	7	156	4
11:04:00	189	168	256	269	14.00	4.01	8.69	22	181	4
11:08:00	203	181	285	269	14.00	4.96	8.69	51	98	4
11:12:00	230	198	285	297	14.00	5.25	8.30	115	95	4
11:16:00	247	231	285	297	14.00	4.88	8.30	110	110	4
11:20:00	262	244	314	297	14.00	4.01	8.99	86	139	4
11:24:00	279	257	314	297	14.00	3.83	9.13	69	147	4
11:28:00	295	257	314	323	14.00	3.74	9.28	61	149	4
11:32:00	295	273	314	323	14.00	4.35	8.89	71	137	4
11:36:00	309	273	314	323	14.00	3.71	9.52	42	161	4
11:40:00	309	287	314	323	14.00	3.91	9.23	42	156	4
11:44:00	309	287	314	323	14.00	3.74	9.33	27	164	4
11:48:00	324	287	314	323	14.00	3.22	9.62	27	178	4
11:52:00	324	301	314	323	14.00	2.86	9.72	27	178	4
11:56:00	324	301	314	323	14.00	2.93	9.72	27	178	4
12:00:00	338	312	327	332	15.30	2.81	9.96	12	186	5

D102812.XLS

10/28/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.03	0.73	17.25	0.00	0.34	36.30	2343	4882	1433	831
12:04:00	0.03	0.76	17.43	0.00	0.34	36.30	2343	4882	1433	831
12:08:00	0.03	0.77	17.88	0.00	0.34	36.30	2343	4882	1433	856
12:12:00	0.03	0.79	17.49	0.00	0.34	36.30	2343	4882	860	856
12:16:00	0.03	0.83	17.45	0.00	0.33	36.30	2343	4882	860	884
12:20:00	0.03	0.92	17.33	0.00	0.33	36.30	1667	637	892	884
12:24:00	0.03	0.82	14.56	0.00	0.33	36.30	1667	612	892	911
12:28:00	0.03	0.75	14.27	0.00	0.33	33.60	1667	612	892	911
12:32:00	0.03	0.64	14.27	0.00	0.33	33.60	1640	612	892	911
12:36:00	0.03	0.66	14.27	0.00	0.33	33.60	1640	612	930	911
12:40:00	0.03	0.69	14.27	0.00	0.33	33.60	1640	612	930	911
12:44:00	0.03	0.78	14.27	0.00	0.33	33.60	1640	612	930	911
12:48:00	0.03	0.82	14.54	0.00	0.33	33.60	1640	612	930	942
12:52:00	0.03	0.73	14.22	0.00	0.33	33.60	1640	612	930	942
12:56:00	0.03	0.66	14.10	0.00	0.33	33.60	1640	612	930	942
13:00:00	0.03	0.68	14.49	0.00	0.33	33.60	1640	612	960	942
13:04:00	0.03	0.71	14.22	0.00	0.34	33.60	1667	638	960	942
13:08:00	0.03	0.94	14.51	0.00	0.34	33.60	1667	638	960	968
13:12:00	0.03	0.82	14.41	0.00	0.35	33.60	1667	638	960	968
13:16:00	0.03	0.66	14.09	0.00	0.34	33.60	1667	638	1000	968
13:20:00	0.03	0.67	14.44	0.00	0.34	33.60	1667	638	1000	1002
13:24:00	0.03	0.69	14.44	0.00	0.32	41.20	1667	663	966	1002
13:28:00	0.03	0.96	14.44	0.00	0.32	41.20	1667	630	940	1002
13:32:00	0.03	0.91	14.44	0.00	0.33	41.20	1667	627	940	1002
13:36:00	0.03	0.75	14.16	0.00	0.33	43.80	1667	653	940	1002
13:40:00	0.03	0.66	14.49	0.00	0.33	43.80	1667	622	940	1002
13:44:00	0.03	0.67	14.49	0.00	0.33	43.80	1667	656	940	1002
13:48:00	0.03	0.68	14.14	0.00	0.33	43.80	1667	661	940	1002
13:52:00	0.03	0.71	14.46	0.00	0.33	43.80	1692	667	940	1002
13:56:00	0.03	0.98	14.14	0.00	0.34	43.80	1692	667	940	1002
14:00:00	0.00	0.89	14.15	0.00	0.35	44.40	1682	676	980	1012

D102812.XLS

10/28/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	338	312	327	332	15.30	2.81	9.96	12	186	5
12:04:00	338	312	327	332	15.30	3.42	9.62	12	176	5
12:08:00	338	312	327	332	15.30	3.54	9.57	12	176	5
12:12:00	352	325	327	332	15.30	3.44	9.57	12	176	5
12:16:00	352	325	327	332	15.30	3.54	9.57	12	176	5
12:20:00	352	325	327	332	15.30	4.03	9.23	12	161	5
12:24:00	352	325	327	332	15.30	2.71	9.96	12	186	5
12:28:00	352	325	327	332	15.30	2.98	9.82	12	173	5
12:32:00	352	325	327	332	15.30	2.98	9.82	12	173	5
12:36:00	352	325	327	332	15.30	2.66	10.11	12	173	5
12:40:00	352	325	327	332	15.30	3.20	9.67	12	173	5
12:44:00	352	325	327	332	15.30	3.57	9.48	12	173	5
12:48:00	352	325	327	332	15.30	3.40	9.57	12	173	5
12:52:00	352	325	327	332	15.30	3.22	9.67	0	173	5
12:56:00	352	325	327	332	15.30	2.74	10.06	0	173	5
13:00:00	366	325	327	332	15.30	2.96	9.96	0	173	5
13:04:00	366	340	327	332	15.30	3.42	9.62	0	173	5
13:08:00	366	340	327	332	15.30	3.81	9.43	0	173	5
13:12:00	366	340	327	332	15.30	3.54	9.57	0	173	5
13:16:00	366	340	327	332	15.30	3.18	9.57	0	173	5
13:20:00	388	354	327	332	28.00	2.91	9.96	0	173	5
13:24:00	388	369	327	332	32.00	3.40	9.57	0	188	5
13:28:00	402	384	327	332	34.80	3.81	9.38	0	200	5
13:32:00	402	384	327	332	34.80	3.61	9.48	0	200	5
13:36:00	402	384	327	332	34.80	3.18	9.77	0	213	5
13:40:00	402	384	327	332	34.80	3.13	9.77	0	213	5
13:44:00	402	384	327	332	34.80	3.22	9.77	0	213	5
13:48:00	402	384	327	332	34.80	3.59	9.52	0	213	5
13:52:00	418	399	327	332	34.80	3.71	9.52	0	213	5
13:56:00	418	399	327	332	34.80	3.91	9.33	0	213	5
14:00:00	422	404	344	350	35.90	3.64	9.48	0	217	4

D102814.XLS

10/28/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.00	0.89	14.15	0.00	0.35	44.40	1682	676	980	1012
14:04:00	0.00	0.78	14.47	0.00	0.34	44.40	1622	678	954	1012
14:08:00	0.00	0.65	14.47	0.00	0.34	44.40	1693	675	954	1012
14:12:00	0.00	0.67	14.47	0.00	0.34	44.40	1693	675	954	1012
14:16:00	0.00	0.68	14.47	0.00	0.34	44.40	1693	675	954	1012
14:20:00	0.00	0.71	14.47	0.00	0.32	44.40	1693	675	986	1012
14:24:00	0.00	0.90	14.05	0.00	0.33	44.40	1693	675	986	1038
14:28:00	0.22	0.87	14.46	0.00	0.33	44.40	1693	675	986	1038
14:32:00	0.03	0.82	14.46	0.00	0.33	44.40	1693	675	1025	1038
14:36:00	0.03	0.66	14.46	0.00	0.33	44.40	1693	657	989	1038
14:40:00	0.03	0.66	14.46	0.00	0.33	44.40	1693	684	1018	1038
14:44:00	0.03	0.67	14.09	0.00	0.33	44.40	1693	684	991	1038
14:48:00	0.03	0.68	14.36	0.00	0.33	44.40	1693	684	1024	1038
14:52:00	0.03	0.69	14.36	0.00	0.34	44.40	1693	684	1024	1064
14:56:00	0.03	0.72	14.36	0.00	0.33	44.40	1693	707	1022	1064
15:00:00	0.03	0.91	14.36	0.00	0.33	44.40	1693	671	1074	1064
15:04:00	0.03	0.83	14.36	0.00	0.34	44.40	1693	708	1045	1064
15:08:00	0.03	0.67	14.36	0.00	0.34	44.40	1722	677	1102	1064
15:12:00	0.75	0.66	14.36	0.00	0.35	44.40	1722	707	1080	1064
15:16:00	0.65	0.69	14.36	0.00	0.34	44.40	1722	698	1038	1064
15:20:00	0.57	0.84	14.36	0.00	0.33	44.40	1722	698	1136	1064
15:24:00	0.67	0.84	14.36	0.00	0.33	44.40	1722	698	1110	1064
15:28:00	0.61	0.64	14.36	0.00	0.34	44.40	1722	698	1111	1090
15:32:00	0.54	0.68	14.36	0.00	0.34	44.40	1722	698	1134	1090
15:36:00	0.61	0.76	14.36	0.00	0.33	44.40	1722	739	1134	1090
15:40:00	0.52	0.85	14.36	0.00	0.34	44.40	1722	701	1145	1090
15:44:00	0.55	0.64	14.36	0.00	0.33	44.40	1722	727	1148	1090
15:48:00	0.49	0.68	14.36	0.00	0.34	44.40	1722	727	1134	1090
15:52:00	0.49	0.75	14.36	0.00	0.34	44.40	1748	741	1171	1118
15:56:00	0.44	0.79	14.36	0.00	0.33	44.40	1748	696	1161	1118
16:00:00	0.46	0.64	14.46	0.00	0.33	44.70	1742	727	1170	1125

D102814.XLS

10/28/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	422	404	344	350	35.90	3.64	9.48	0	217	4
14:04:00	422	404	344	350	35.90	3.59	9.48	0	217	4
14:08:00	422	404	344	350	35.90	3.27	9.48	0	217	4
14:12:00	422	404	344	350	35.90	3.15	9.82	0	217	4
14:16:00	422	404	344	350	35.90	3.32	9.72	0	217	4
14:20:00	422	404	344	350	35.90	3.64	9.48	0	217	4
14:24:00	422	417	344	350	35.90	4.01	9.28	0	205	4
14:28:00	422	417	344	350	35.90	4.05	9.23	0	205	4
14:32:00	437	417	344	350	35.90	3.79	9.38	0	217	4
14:36:00	437	417	344	350	35.90	3.52	9.38	0	217	4
14:40:00	437	417	344	350	35.90	3.37	9.67	0	222	4
14:44:00	437	417	344	350	35.90	3.25	9.72	0	220	4
14:48:00	437	417	344	350	35.90	3.42	9.67	0	220	4
14:52:00	437	417	344	350	35.90	3.79	9.62	0	220	4
14:56:00	437	430	344	350	35.90	3.79	9.62	0	220	4
15:00:00	437	430	344	350	35.90	4.10	9.23	0	203	4
15:04:00	452	430	344	350	35.90	3.88	9.33	0	217	4
15:08:00	452	430	344	350	35.90	3.74	9.43	0	217	4
15:12:00	452	430	344	350	35.90	3.22	9.77	0	217	4
15:16:00	452	430	344	350	35.90	3.27	9.77	0	217	4
15:20:00	452	430	344	350	35.90	3.93	9.33	0	217	4
15:24:00	452	430	344	350	35.90	3.66	9.48	0	217	4
15:28:00	452	430	344	350	35.90	3.20	9.72	0	217	4
15:32:00	452	430	344	350	35.90	3.15	9.82	0	217	4
15:36:00	452	445	344	350	35.90	3.91	9.52	0	217	4
15:40:00	452	445	344	350	35.90	3.69	9.38	0	217	4
15:44:00	452	445	344	350	35.90	3.15	9.67	0	217	4
15:48:00	452	445	344	350	35.90	3.20	9.77	0	217	4
15:52:00	467	445	344	350	35.90	3.88	9.52	0	217	4
15:56:00	467	445	344	350	35.90	3.49	9.57	0	217	4
16:00:00	469	451	343	348	36.20	3.15	9.77	0	222	6

D102816.XLS

10/28/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.46	0.64	14.46	0.00	0.33	44.70	1742	727	1170	1125
16:04:00	0.46	0.67	14.46	0.00	0.33	44.70	1742	727	1157	1125
16:08:00	0.45	0.72	14.46	0.00	0.33	44.70	1742	702	1191	1125
16:12:00	0.35	0.79	14.50	0.00	0.34	44.70	1742	712	1169	1125
16:16:00	0.35	0.64	14.42	0.00	0.34	44.70	1742	741	1169	1125
16:20:00	0.35	0.67	14.42	0.00	0.34	44.70	1742	766	1169	1125
16:24:00	0.31	0.72	14.12	0.00	0.33	44.70	1742	731	1151	1125
16:28:00	0.31	0.79	14.20	0.00	0.33	44.70	1742	731	1203	1125
16:32:00	0.30	0.65	14.23	0.00	0.33	44.70	1742	740	1195	1151
16:36:00	0.21	0.68	14.23	0.00	0.34	44.70	1742	736	1202	1151
16:40:00	0.19	0.84	14.23	0.00	0.33	44.70	1770	736	1202	1151
16:44:00	0.19	0.68	14.23	0.00	0.34	44.70	1770	741	1202	1151
16:48:00	0.15	0.66	14.49	0.00	0.34	44.70	1770	778	1229	1151
16:52:00	0.20	0.71	14.14	0.00	0.33	44.70	1770	778	1235	1151
16:56:00	0.20	0.77	14.43	0.00	0.32	44.70	1770	752	1203	1151
17:00:00	0.11	0.65	14.18	0.00	0.34	44.70	1770	752	1238	1181
17:04:00	0.11	0.68	14.44	0.00	0.34	44.70	1770	790	1238	1181
17:08:00	0.07	0.84	14.44	0.00	0.34	44.70	1770	767	1238	1181
17:12:00	0.14	0.72	14.44	0.00	0.34	44.70	1770	800	1238	1181
17:16:00	0.08	0.66	14.44	0.00	0.34	44.70	1770	800	1238	1181
17:20:00	0.08	0.69	14.44	0.00	0.34	44.70	1770	794	1238	1181
17:24:00	0.08	0.86	14.19	0.00	0.34	44.70	1770	794	1238	1181
17:28:00	0.15	0.70	14.19	0.00	0.34	44.70	1770	794	1238	1181
17:32:00	0.07	0.66	14.50	0.00	0.34	44.70	1770	794	1238	1207
17:36:00	0.07	0.69	14.19	0.00	0.34	44.70	1770	782	1264	1207
17:40:00	0.03	0.83	14.54	0.00	0.34	44.70	1770	782	1264	1207
17:44:00	0.03	0.68	14.54	0.00	0.34	44.70	1770	782	1264	1207
17:48:00	0.03	0.66	14.54	0.00	0.33	44.70	1770	793	1264	1207
17:52:00	0.03	0.69	14.28	0.00	0.34	44.70	1770	793	1264	1207
17:56:00	0.03	0.81	14.28	0.00	0.33	44.70	1770	819	1264	1207
18:00:00	0.01	0.68	14.51	0.00	0.34	45.70	1778	830	1286	1224

D102816.XLS

10/28/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	469	451	343	348	36.20	3.15	9.77	0	222	6
16:04:00	469	451	343	348	36.20	3.10	9.82	0	210	6
16:08:00	469	451	343	348	36.20	3.74	9.57	0	210	6
16:12:00	469	451	343	348	36.20	3.69	9.48	0	210	6
16:16:00	469	451	343	348	36.20	3.13	9.77	0	210	6
16:20:00	469	451	343	348	36.20	3.18	9.77	0	210	6
16:24:00	469	451	343	348	36.20	3.81	9.52	0	210	6
16:28:00	469	451	343	348	36.20	3.59	9.52	0	210	6
16:32:00	482	464	343	348	36.20	3.13	9.77	0	222	6
16:36:00	482	464	343	348	36.20	3.22	9.72	0	210	6
16:40:00	482	464	343	348	36.20	3.81	9.38	0	222	6
16:44:00	482	464	369	374	36.20	3.22	9.72	0	222	6
16:48:00	503	482	369	374	36.20	3.03	9.82	0	222	6
16:52:00	503	482	369	374	36.20	3.76	9.43	0	0	6
16:56:00	516	497	369	374	36.20	3.44	9.77	0	0	6
17:00:00	516	497	369	374	36.20	2.98	9.82	0	0	6
17:04:00	516	497	369	374	36.20	3.42	9.52	0	0	6
17:08:00	530	511	369	374	36.20	3.76	9.38	0	0	6
17:12:00	530	511	369	374	36.20	3.20	9.52	0	0	6
17:16:00	530	511	369	374	36.20	3.03	9.82	0	0	6
17:20:00	543	524	369	374	36.20	3.81	9.43	0	0	6
17:24:00	543	524	369	374	36.20	3.57	9.33	0	0	6
17:28:00	543	524	369	374	36.20	3.15	9.67	0	0	6
17:32:00	543	538	369	374	36.20	3.27	9.67	0	0	6
17:36:00	543	538	369	374	36.20	3.88	9.43	0	0	6
17:40:00	556	538	369	374	36.20	3.69	9.33	0	0	6
17:44:00	556	538	369	374	36.20	3.20	9.43	0	0	6
17:48:00	556	553	369	374	36.20	3.27	9.72	0	0	6
17:52:00	556	553	369	374	36.20	3.91	9.48	0	0	6
17:56:00	570	553	369	374	36.20	3.49	9.48	0	0	6
18:00:00	572	559	370	375	37.00	3.35	9.67	0	0	5

D102818.XLS

10/28/91 18:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
18:00:00	0.01	0.68	14.51	0.00	0.34	45.70	1778	830	1286	1224
18:04:00	0.01	0.66	14.22	0.00	0.34	45.70	1778	830	1286	1224
18:08:00	0.01	0.68	14.22	0.00	0.32	45.70	1778	836	1286	1224
18:12:00	0.01	0.82	14.22	0.00	0.33	45.70	1778	836	1286	1224
18:16:00	0.01	0.68	14.22	0.00	0.34	45.70	1778	807	1286	1224
18:20:00	0.01	0.65	14.47	0.00	0.34	45.70	1778	839	1286	1224
18:24:00	0.01	0.68	14.19	0.00	0.33	45.70	1778	839	1286	1224
18:28:00	0.01	0.75	14.19	0.00	0.33	45.70	1778	839	1314	1224
18:32:00	0.01	0.76	14.49	0.00	0.32	45.70	1778	839	1314	1250
18:36:00	0.01	0.64	14.49	0.00	0.34	45.70	1804	839	1314	1250
18:40:00	0.01	0.67	14.49	0.00	0.34	45.70	1804	839	1314	1250
18:44:00	0.01	0.72	14.49	0.00	0.34	45.70	1804	842	1314	1250
18:48:00	0.01	0.79	14.18	0.00	0.33	45.70	1804	842	1314	1250
18:52:00	0.01	0.64	14.18	0.00	0.33	45.70	1804	842	1314	1250
18:56:00	0.01	0.67	14.18	0.00	0.33	45.70	1804	871	1314	1250
19:00:00	0.01	0.69	14.18	0.00	0.34	45.70	1804	839	1314	1250
19:04:00	0.01	0.79	14.18	0.00	0.34	45.70	1804	839	1314	1250
19:08:00	0.01	0.68	14.45	0.00	0.33	45.70	1804	839	1314	1250
19:12:00	0.01	0.65	14.45	0.00	0.33	45.70	1804	883	1314	1250
19:16:00	0.01	0.67	14.45	0.00	0.34	45.70	1804	841	1314	1250
19:20:00	0.01	0.71	14.45	0.00	0.33	45.70	1804	841	1314	1277
19:24:00	0.01	0.77	14.13	0.00	0.33	45.70	1804	841	1341	1277
19:28:00	0.01	0.68	14.45	0.00	0.33	45.70	1804	847	1341	1277
19:32:00	0.01	0.65	14.19	0.00	0.34	45.70	1804	880	1341	1277
19:36:00	0.01	0.69	14.46	0.00	0.36	45.70	1804	854	1341	1277
19:40:00	0.01	0.80	14.46	0.00	0.33	45.70	1804	854	1341	1277
19:44:00	0.01	0.77	14.46	0.00	0.33	45.70	1804	854	1341	1277
19:48:00	0.01	0.65	14.13	0.00	0.33	45.70	1804	883	1341	1277
19:52:00	0.01	0.67	14.52	0.00	0.33	45.70	1804	896	1341	1277
19:56:00	0.01	0.74	14.52	0.00	0.33	45.70	1804	894	1341	1277
20:00:00	0.00	0.78	14.49	0.00	0.33	45.00	1817	881	1354	1302

D102818.XLS

10/28/91 18:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
18:00:00	572	559	370	375	37.00	3.35	9.67	0	0	5
18:04:00	572	559	370	375	37.00	3.13	9.72	0	0	5
18:08:00	572	559	294	345	37.00	3.93	9.38	0	0	5
18:12:00	572	544	294	318	37.00	3.37	9.33	0	0	5
18:16:00	572	544	326	318	37.00	3.15	9.67	0	0	5
18:20:00	572	544	326	347	37.00	3.08	9.77	0	0	5
18:24:00	586	544	354	347	37.00	3.54	9.48	0	0	5
18:28:00	586	544	354	374	37.00	3.25	9.48	0	0	5
18:32:00	586	544	354	374	37.00	3.25	9.48	0	0	5
18:36:00	586	544	354	374	37.00	3.25	9.48	0	0	5
18:40:00	586	544	354	374	37.00	3.25	9.48	0	0	5
18:44:00	586	544	354	374	37.00	3.25	9.72	0	0	5
18:48:00	586	544	354	374	37.00	3.25	9.72	0	0	5
18:52:00	586	544	354	374	37.00	0.15	9.72	0	0	5
18:56:00	599	544	354	374	37.00	0.07	4.69	476	0	5
19:00:00	599	544	354	374	37.00	0.07	15.58	425	0	5
19:04:00	599	544	354	374	37.00	0.25	0.25	105	0	5
19:08:00	599	544	354	374	37.00	0.25	0.25	86	0	5
19:12:00	599	544	354	374	37.00	0.25	0.25	86	0	5
19:16:00	599	558	354	374	37.00	1.76	0.25	56	0	5
19:20:00	599	558	354	374	37.00	0.03	0.25	90	0	5
19:24:00	599	558	354	374	37.00	0.03	0.25	103	0	5
19:28:00	599	558	354	374	37.00	0.03	0.25	115	0	21
19:32:00	613	558	354	374	37.00	0.03	0.25	115	0	21
19:36:00	613	558	354	374	37.00	0.03	0.25	127	0	21
19:40:00	613	558	354	374	37.00	0.03	0.25	127	0	21
19:44:00	613	558	354	374	37.00	0.03	0.25	139	0	21
19:48:00	613	558	354	374	37.00	0.03	0.25	139	0	21
19:52:00	613	558	354	374	37.00	0.03	0.49	152	0	21
19:56:00	613	558	354	374	37.00	0.03	0.49	152	0	21
20:00:00	621	568	368	372	36.40	0.76	0.00	0	0	1

D102820.XLS

10/28/91 20:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
20:00:00	0.00	0.78	14.49	0.00	0.33	45.00	1817	881	1354	1302
20:04:00	0.00	0.64	14.50	0.00	0.34	45.00	1817	881	1354	1302
20:08:00	0.00	0.67	14.18	0.00	0.33	45.00	1817	881	1354	1302
20:12:00	0.00	0.71	14.50	0.00	0.33	45.00	1817	881	1354	1302
20:16:00	0.00	0.77	14.50	0.00	0.33	45.00	1817	881	1354	1302
20:20:00	0.00	0.66	14.50	0.00	0.34	45.00	1817	881	1354	1302
20:24:00	0.00	0.66	14.50	0.00	0.33	45.00	1817	881	1354	1302
20:28:00	0.00	0.69	14.19	0.00	0.33	45.00	1817	877	1354	1302
20:32:00	0.00	0.78	14.19	0.00	0.33	45.00	1817	877	1381	1302
20:36:00	0.00	0.57	13.52	0.00	0.34	45.00	1785	877	1348	1302
20:40:00	0.00	0.64	13.52	0.00	0.34	45.00	1813	877	1348	1302
20:44:00	0.00	0.68	13.52	0.00	0.34	45.00	1813	902	1380	1302
20:48:00	0.00	0.74	13.52	0.00	0.34	45.00	1813	858	1380	1302
20:52:00	0.00	0.63	13.52	0.00	0.34	45.00	1813	891	1380	1302
20:56:00	0.00	0.66	13.52	0.00	0.34	45.00	1813	891	1380	1302
21:00:00	0.00	0.76	13.47	0.00	0.34	45.00	1813	891	1380	1302
21:04:00	0.00	0.70	13.47	0.00	0.34	45.00	1813	891	1380	1302
21:08:00	0.00	0.63	13.79	0.00	0.34	45.00	1813	891	1380	1302
21:12:00	0.00	0.66	13.51	0.00	0.34	45.00	1813	891	1380	1302
21:16:00	0.00	0.76	13.51	0.00	0.34	45.00	1813	891	1380	1302
21:20:00	0.00	0.62	13.51	0.00	0.34	45.00	1813	891	1380	1302
21:24:00	0.00	0.64	13.51	0.00	0.34	45.00	1813	891	1383	1302
21:28:00	0.00	0.73	13.51	0.00	0.34	45.00	1813	891	1383	1302
21:32:00	0.00	0.58	12.80	0.00	0.34	42.40	1772	891	1383	1302
21:36:00	0.00	0.60	12.80	0.00	0.34	42.40	1772	865	1386	1302
21:40:00	0.00	0.73	12.80	0.00	0.34	42.40	1772	865	1386	1302
21:44:00	0.00	0.57	13.08	0.00	0.34	42.40	1772	865	1386	1302
21:48:00	0.00	0.62	12.78	0.00	0.34	42.40	1745	868	1354	1302
21:52:00	0.00	0.70	13.04	0.00	0.34	42.40	1745	898	1354	1302
21:56:00	0.00	0.60	13.04	0.00	0.34	42.40	1745	870	1354	1302
22:00:00	0.00	0.66	13.03	0.00	0.34	41.00	1773	877	1376	1306

D102820.XLS

10/28/91 20:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
20:00:00	621	568	368	372	36.40	0.76	0.00	0	0	1
20:04:00	621	568	368	372	36.40	4.81	0.00	0	0	1
20:08:00	621	568	368	372	36.40	2.76	0.00	0	0	1
20:12:00	621	568	368	372	36.40	2.76	0.00	0	0	1
20:16:00	621	568	368	372	36.40	2.44	0.00	0	0	1
20:20:00	621	568	368	372	36.40	2.44	0.00	0	0	1
20:24:00	621	568	368	372	36.40	2.44	0.00	0	0	1
20:28:00	621	568	368	372	36.40	0.54	0.25	90	0	1
20:32:00	621	568	368	372	36.40	3.00	0.25	0	0	1
20:36:00	621	568	368	372	36.40	4.15	0.25	0	0	1
20:40:00	621	568	368	372	36.40	3.22	15.24	300	0	1
20:44:00	621	568	368	372	36.40	3.40	9.67	3	0	1
20:48:00	621	568	368	372	36.40	3.18	10.11	3	0	1
20:52:00	621	568	368	372	36.40	2.74	10.21	3	0	1
20:56:00	621	568	368	372	36.40	3.20	9.87	3	0	1
21:00:00	621	568	368	372	36.40	3.20	9.67	3	0	1
21:04:00	621	568	368	372	36.40	2.86	10.01	3	0	1
21:08:00	621	568	368	372	36.40	2.74	10.16	3	0	1
21:12:00	636	568	368	372	36.40	3.35	9.72	3	0	1
21:16:00	636	568	368	372	36.40	3.15	9.57	3	0	1
21:20:00	636	568	368	372	36.40	2.71	9.96	3	0	1
21:24:00	636	568	368	372	36.40	3.15	10.01	3	0	1
21:28:00	636	582	368	372	36.40	3.35	9.52	3	0	1
21:32:00	636	582	368	372	33.70	3.79	9.33	3	0	1
21:36:00	636	582	368	372	33.70	4.03	9.43	3	0	1
21:40:00	636	582	368	372	33.70	4.10	8.89	3	0	1
21:44:00	636	582	368	372	33.70	3.52	9.38	3	0	1
21:48:00	636	582	368	372	33.70	4.13	9.09	3	0	1
21:52:00	636	582	368	372	33.70	3.22	9.38	3	1000	1
21:56:00	636	582	368	372	33.70	2.88	9.87	3	49	1
22:00:00	634	576	368	372	33.00	3.10	9.43	0	215	0

D102822.XLS

10/28/91 22:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
22:00:00	0.00	0.66	13.03	0.00	0.34	41.00	1773	877	1376	1306
22:04:00	0.00	0.65	12.70	0.00	0.33	41.00	1773	877	1376	1306
22:08:00	0.00	0.61	12.95	0.00	0.33	41.00	1773	905	1376	1306
22:12:00	0.00	0.70	12.95	0.00	0.33	41.00	1773	878	1376	1306
22:16:00	0.00	0.58	12.95	0.00	0.34	41.00	1773	878	1376	1306
22:20:00	0.00	0.63	12.95	0.00	0.33	41.00	1773	878	1376	1306
22:24:00	0.00	0.75	12.96	0.00	0.33	41.00	1773	878	1376	1306
22:28:00	0.00	0.60	12.96	0.00	0.33	41.00	1773	910	1376	1306
22:32:00	0.00	0.66	12.64	0.00	0.33	41.00	1773	880	1376	1306
22:36:00	0.00	0.67	12.93	0.00	0.33	41.00	1773	886	1376	1306
22:40:00	0.00	0.62	12.93	0.00	0.34	41.00	1773	886	1376	1306
22:44:00	0.00	0.76	12.63	0.00	0.34	29.70	1773	901	1215	1306
22:48:00	0.00	0.59	12.63	0.00	0.33	29.70	1773	901	1383	1306
22:52:00	0.00	0.63	13.04	0.00	0.33	51.00	1773	901	1425	1348
22:56:00	0.00	0.75	12.69	0.00	0.33	54.40	1773	873	1395	1348
23:00:00	0.00	0.60	12.78	0.00	0.33	57.20	1773	873	1395	1348
23:04:00	0.00	0.64	12.78	0.00	0.33	57.20	1773	873	1389	1322
23:08:00	0.00	0.73	13.03	0.00	0.33	57.20	1773	873	1364	1322
23:12:00	0.00	0.61	13.01	0.00	0.35	72.00	1773	873	1393	1322
23:16:00	0.00	0.77	13.01	0.00	0.33	91.60	1681	916	1393	1322
23:20:00	0.00	0.59	12.67	0.00	0.33	113.30	1625	857	1368	1290
23:24:00	0.00	0.65	12.52	0.00	0.35	127.90	1580	917	1335	1265
23:28:00	0.00	0.68	12.99	0.00	0.33	137.00	1518	917	1307	1239
23:32:00	0.00	0.62	12.96	0.00	0.33	144.10	1518	917	1279	1239
23:36:00	0.00	0.76	12.65	0.00	0.34	146.80	1518	917	1279	1210
23:40:00	0.00	0.60	12.65	0.00	0.33	155.30	1492	917	1254	1210
23:44:00	0.00	0.65	12.34	0.00	0.33	171.20	1460	977	1225	1184
23:48:00	0.00	0.68	12.64	0.00	0.33	177.30	1432	889	1193	1159
23:52:00	0.00	0.61	12.52	0.00	0.33	184.50	1405	923	1193	1159
23:56:00	0.00	0.69	12.52	0.00	0.33	187.30	1405	933	1163	1125
0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D102822.XLS

10/28/91 22:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
22:00:00	634	576	368	372	33.00	3.10	9.43	0	215	0
22:04:00	634	576	368	372	33.00	17.90	3.37	0	34	0
22:08:00	634	576	368	372	33.00	0.44	9.72	0	208	0
22:12:00	634	576	368	372	33.00	3.93	9.33	0	208	0
22:16:00	634	576	368	372	33.00	3.13	9.77	0	220	0
22:20:00	634	576	368	372	33.00	3.64	9.57	0	220	0
22:24:00	634	576	368	372	33.00	3.47	9.62	0	222	0
22:28:00	634	576	368	372	33.00	3.10	9.96	0	237	0
22:32:00	634	576	368	372	33.00	3.74	9.62	0	237	0
22:36:00	634	576	368	372	33.00	3.27	9.72	0	237	0
22:40:00	634	576	368	372	33.00	3.20	10.06	0	237	0
22:44:00	617	576	368	372	16.20	3.86	9.23	0	203	0
22:48:00	617	558	368	372	20.40	3.00	9.96	0	208	0
22:52:00	642	578	368	372	45.40	3.64	9.62	0	237	0
22:56:00	660	606	368	372	48.70	3.42	9.57	0	269	0
23:00:00	660	606	368	372	51.40	3.10	9.96	0	286	0
23:04:00	660	606	368	372	51.40	3.59	9.77	0	237	0
23:08:00	660	619	368	372	51.40	3.25	9.67	0	235	0
23:12:00	675	619	368	372	68.70	3.35	9.87	0	308	0
23:16:00	707	648	368	372	88.10	3.44	9.57	0	322	0
23:20:00	742	680	368	372	110.30	3.08	9.92	0	423	0
23:24:00	757	698	368	372	124.80	3.35	9.67	0	447	0
23:28:00	771	713	368	372	133.80	3.00	9.96	0	523	0
23:32:00	790	726	368	372	140.80	3.27	9.72	0	508	0
23:36:00	760	742	301	372	143.60	3.22	9.72	0	515	0
23:40:00	760	742	301	372	152.50	3.22	9.72	0	496	0
23:44:00	794	759	360	372	168.30	2.96	9.72	0	513	0
23:48:00	755	742	360	372	176.70	2.96	9.96	0	501	0
23:52:00	791	759	360	372	183.00	2.96	9.96	0	501	0
23:56:00	761	759	360	372	186.00	2.96	9.96	0	501	0
0:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D102900.XLS

10/29/91 0:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
0:00:00	0.00	0.56	12.92	0.00	0.34	192.30	1395	927	1154	1113
0:04:00	0.00	0.62	12.55	0.00	0.34	192.30	1395	927	1154	1113
0:08:00	0.00	0.76	12.86	0.00	0.34	194.90	1367	900	1154	1113
0:12:00	0.00	0.58	12.86	0.00	0.34	194.90	1367	878	1124	1088
0:16:00	0.00	0.66	12.58	0.00	0.34	194.90	1367	909	1124	1088
0:20:00	0.00	0.53	13.11	0.00	0.34	194.90	1359	862	1124	1088
0:24:00	0.00	0.62	12.51	0.00	0.34	197.70	1359	885	1124	1088
0:28:00	0.00	0.70	12.61	0.00	0.34	197.70	1359	887	1094	1088
0:32:00	0.00	0.58	13.07	0.00	0.34	197.70	1331	871	1094	1061
0:36:00	0.00	0.77	12.58	0.00	0.34	200.30	1331	907	1094	1061
0:40:00	0.00	0.53	12.58	0.00	0.34	200.30	1331	893	1094	1061
0:44:00	0.00	0.64	12.58	0.00	0.34	200.30	1331	893	1094	1061
0:48:00	0.00	0.64	13.01	0.00	0.34	196.80	1331	922	1047	1061
0:52:00	0.00	0.61	13.44	0.00	0.35	189.20	1331	883	1047	1061
0:56:00	0.00	0.83	13.17	0.00	0.33	180.40	1331	915	1047	1061
1:00:00	0.00	0.58	13.03	0.00	0.33	171.90	1331	915	1018	1061
1:04:00	0.00	0.63	13.28	0.00	0.34	161.10	1331	887	995	1061
1:08:00	0.00	0.70	12.89	0.00	0.33	154.00	1366	887	1036	1061
1:12:00	0.00	0.60	13.19	0.00	0.33	147.90	1366	912	1093	1087
1:16:00	0.00	0.66	12.81	0.00	0.33	144.10	1366	912	1101	1087
1:20:00	0.00	0.65	12.81	0.00	0.34	144.10	1400	912	1101	1087
1:24:00	0.00	0.61	12.81	0.00	0.33	140.80	1400	912	1101	1087
1:28:00	0.00	0.68	12.81	0.00	0.33	140.80	1400	912	1133	1087
1:32:00	0.00	0.65	12.81	0.00	0.34	140.80	1400	947	1133	1115
1:36:00	0.00	0.62	12.81	0.00	0.33	140.80	1429	919	1133	1115
1:40:00	0.00	0.92	12.81	0.00	0.33	140.80	1429	923	1143	1115
1:44:00	0.00	0.59	12.81	0.00	0.34	144.50	1429	888	1143	1115
1:48:00	0.00	0.00	2.89	0.00	0.33	89.70	1028	744	857	1085
1:52:00	0.00	0.00	2.67	0.00	0.33	24.50	1028	609	886	1040
1:56:00	0.00	0.00	2.67	0.00	0.34	18.00	1160	651	1017	1040
2:00:00	0.00	0.00	2.86	0.00	0.32	17.00	1199	776	1082	1070

D102900.XLS

10/29/91 0:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
0:00:00	793	761	373	379	189.40	3.00	9.92	0	498	4
0:04:00	774	761	373	379	189.40	3.32	9.62	0	498	4
0:08:00	774	761	373	379	192.00	3.18	9.77	0	498	4
0:12:00	763	761	373	379	192.00	3.44	9.77	0	486	4
0:16:00	779	746	373	379	192.00	3.44	9.52	0	486	4
0:20:00	773	762	373	379	192.00	3.44	9.52	0	498	4
0:24:00	773	747	373	379	194.80	3.44	9.52	0	476	4
0:28:00	771	760	373	379	194.80	3.42	9.52	0	476	4
0:32:00	771	760	373	379	194.80	3.74	9.52	0	464	4
0:36:00	776	760	373	379	197.50	3.74	9.28	0	464	4
0:40:00	776	760	373	379	197.50	3.74	9.28	0	447	4
0:44:00	791	760	373	379	197.50	3.66	9.28	0	445	4
0:48:00	773	760	373	379	193.60	3.93	9.28	0	457	4
0:52:00	789	760	373	379	185.70	3.93	9.28	0	479	4
0:56:00	764	760	373	379	177.10	3.93	9.28	0	493	4
1:00:00	764	741	373	379	168.60	3.59	9.28	0	518	4
1:04:00	778	741	373	379	157.50	3.32	9.57	0	554	4
1:08:00	793	757	373	379	150.70	3.32	9.57	0	579	4
1:12:00	793	740	373	379	143.90	3.32	9.57	0	567	4
1:16:00	757	740	373	379	140.90	3.05	9.82	0	579	4
1:20:00	757	754	373	379	140.90	3.05	9.82	0	579	4
1:24:00	771	767	373	379	138.30	3.05	9.82	0	569	4
1:28:00	771	734	373	379	138.30	3.05	9.82	0	569	4
1:32:00	771	750	373	379	138.30	3.05	9.82	0	571	4
1:36:00	792	767	373	379	138.30	3.05	9.82	0	571	4
1:40:00	760	742	373	379	138.30	3.05	9.82	0	571	4
1:44:00	777	742	373	379	141.20	3.05	9.82	0	571	4
1:48:00	739	731	373	379	83.50	8.84	5.37	0	225	4
1:52:00	651	642	373	379	14.80	7.69	5.72	51	188	4
1:56:00	613	582	373	379	14.80	16.70	2.54	73	134	4
2:00:00	617	584	394	372	14.50	17.63	1.57	98	69	4

D102902.XLS

10/29/91 2:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
2:00:00	0.00	0.00	2.86	0.00	0.32	17.00	1199	776	1082	1070
2:04:00	0.00	0.00	6.35	0.00	0.33	17.00	1166	825	1082	1042
2:08:00	0.00	0.00	2.97	0.00	0.34	17.00	1166	753	1082	1042
2:12:00	0.00	0.17	2.97	0.00	0.33	17.00	1166	793	1082	1042
2:16:00	0.00	0.34	7.54	0.00	0.34	19.80	1195	818	1082	1042
2:20:00	0.00	0.47	10.53	0.00	0.34	23.60	1260	846	1082	1042
2:24:00	0.00	0.76	12.72	0.00	0.33	26.80	1409	846	1082	1042
2:28:00	0.00	0.57	13.04	0.00	0.33	26.80	1436	877	1108	1074
2:32:00	0.00	0.67	13.04	0.00	0.33	47.50	1508	877	1150	1107
2:36:00	0.00	0.59	12.68	0.00	0.33	54.80	1508	849	1150	1133
2:40:00	0.00	0.65	12.80	0.00	0.33	63.30	1573	849	1180	1133
2:44:00	0.00	0.78	12.80	0.00	0.33	74.90	1573	849	1211	1159
2:48:00	0.00	0.56	12.76	0.00	0.33	84.60	1573	849	1211	1159
2:52:00	0.00	0.65	13.02	0.00	0.33	91.20	1525	890	1211	1159
2:56:00	0.00	0.76	12.76	0.00	0.33	93.90	1525	890	1211	1159
3:00:00	0.00	0.62	12.76	0.00	0.33	97.90	1525	890	1211	1159
3:04:00	0.00	0.63	12.76	0.00	0.33	103.60	1525	890	1211	1159
3:08:00	0.00	0.64	12.76	0.00	0.33	106.80	1525	921	1211	1159
3:12:00	0.00	0.60	12.76	0.00	0.33	110.20	1499	921	1211	1159
3:16:00	0.00	0.67	12.87	0.00	0.33	116.20	1499	921	1211	1159
3:20:00	0.00	0.57	12.46	0.00	0.33	118.80	1473	921	1211	1159
3:24:00	0.00	0.61	12.46	0.00	0.33	125.60	1473	921	1211	1159
3:28:00	0.00	0.75	12.46	0.00	0.33	128.70	1473	921	1211	1159
3:32:00	0.00	0.59	12.10	0.00	0.33	132.90	1447	947	1211	1159
3:36:00	0.00	0.65	12.10	0.00	0.33	138.30	1447	918	1211	1159
3:40:00	0.00	0.59	12.10	0.00	0.33	138.30	1418	945	1184	1159
3:44:00	0.00	0.61	12.10	0.00	0.33	141.00	1418	945	1184	1159
3:48:00	0.00	0.74	11.81	0.00	0.33	144.10	1418	945	1184	1134
3:52:00	0.00	0.58	11.81	0.00	0.33	144.10	1418	945	1184	1134
3:56:00	0.00	0.62	11.81	0.00	0.33	146.80	1418	916	1157	1134
4:00:00	0.59	0.70	11.85	0.00	0.33	147.60	1390	914	1151	1118

D102902.XLS

10/29/91 2:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
2:00:00	617	584	394	372	14.50	17.63	1.57	98	69	4
2:04:00	617	584	365	372	14.50	17.90	0.93	115	27	4
2:08:00	617	584	365	372	14.50	17.58	1.32	110	27	4
2:12:00	617	584	365	372	14.50	11.06	6.16	799	27	4
2:16:00	617	584	365	372	14.50	6.62	7.86	22	81	4
2:20:00	617	584	365	372	14.50	5.32	8.45	7	100	4
2:24:00	617	584	365	372	14.50	4.88	8.84	7	115	4
2:28:00	617	584	365	372	18.30	4.03	9.28	7	139	4
2:32:00	649	613	365	372	42.50	3.27	9.72	7	156	4
2:36:00	663	650	365	372	49.40	4.03	9.28	7	178	4
2:40:00	677	650	365	372	58.80	7.94	7.96	7	149	4
2:44:00	690	667	365	372	70.90	2.86	9.82	7	232	4
2:48:00	690	683	365	372	78.50	4.13	9.18	7	247	4
2:52:00	690	697	365	372	86.00	4.42	9.18	7	276	4
2:56:00	727	713	365	372	89.20	2.93	10.06	7	359	4
3:00:00	727	728	365	372	95.10	2.64	10.06	7	369	4
3:04:00	741	728	365	372	98.50	3.74	9.33	7	391	4
3:08:00	755	741	365	372	102.00	3.74	9.33	7	423	4
3:12:00	755	741	365	372	108.90	3.74	9.33	7	420	4
3:16:00	769	741	365	372	113.00	3.74	9.33	7	440	4
3:20:00	769	741	365	372	115.60	3.74	9.62	7	464	4
3:24:00	784	741	365	372	122.00	3.76	9.39	7	459	4
3:28:00	784	741	365	372	125.40	3.40	9.67	7	491	4
3:32:00	748	741	365	372	129.70	3.40	9.67	7	476	4
3:36:00	764	741	365	372	135.20	3.13	9.67	7	498	4
3:40:00	778	757	365	372	135.20	3.13	9.92	7	501	4
3:44:00	778	757	365	372	137.90	3.13	9.92	7	520	4
3:48:00	757	757	365	372	140.90	2.86	9.92	7	523	4
3:52:00	770	757	365	372	140.90	2.86	9.92	7	513	4
3:56:00	784	757	365	372	143.70	2.86	9.92	7	535	4
4:00:00	786	743	370	376	144.30	2.59	10.11	0	513	4

D102904.XLS

10/29/91 4:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
4:00:00	0.59	0.70	11.85	0.00	0.33	147.60	1390	914	1151	1118
4:04:00	0.02	0.58	11.85	0.00	0.33	147.60	1390	914	1151	1118
4:08:00	0.02	0.64	11.85	0.00	0.33	147.60	1390	912	1151	1118
4:12:00	0.02	0.60	11.85	0.00	0.33	147.60	1390	938	1151	1118
4:16:00	0.02	0.63	12.13	0.00	0.33	147.60	1390	901	1145	1118
4:20:00	0.02	0.72	15.45	0.00	0.33	156.70	1449	941	1145	1118
4:24:00	0.02	0.73	15.35	0.00	0.33	169.60	1449	941	1145	1118
4:28:00	0.02	0.66	15.35	0.00	0.34	169.30	1421	931	1109	1118
4:32:00	0.02	0.71	15.81	0.00	0.33	165.00	1475	927	1128	1118
4:36:00	0.02	0.86	16.48	0.00	0.33	160.90	1475	956	1162	1118
4:40:00	0.02	0.77	16.57	0.00	0.33	160.90	1504	956	1162	1144
4:44:00	0.02	0.72	16.65	0.00	0.33	163.50	1549	956	1162	1144
4:48:00	0.02	0.84	17.72	0.00	0.33	163.50	1581	956	1192	1170
4:52:00	0.02	0.93	17.08	0.00	0.33	160.60	1613	983	1154	1170
4:56:00	0.02	0.92	16.54	0.00	0.33	157.20	1613	983	1206	1198
5:00:00	0.02	0.97	16.88	0.00	0.33	153.90	1639	983	1213	1198
5:04:00	0.02	0.96	16.63	0.00	0.35	153.90	1665	1008	1241	1227
5:08:00	0.02	0.94	16.25	0.00	0.33	150.90	1665	987	1272	1227
5:12:00	0.02	0.90	16.53	0.00	0.33	150.90	1701	987	1279	1227
5:16:00	0.02	0.83	16.54	0.00	0.34	150.90	1701	987	1250	1254
5:20:00	0.02	0.82	16.54	0.00	0.32	150.90	1701	1014	1259	1254
5:24:00	0.02	0.83	16.13	0.00	0.33	150.90	1701	1014	1303	1254
5:28:00	0.02	0.84	16.14	0.00	0.33	154.20	1701	1015	1303	1254
5:32:00	0.02	0.89	16.25	0.00	0.33	154.20	1701	1015	1303	1282
5:36:00	0.02	0.95	16.61	0.00	0.33	154.20	1701	980	1289	1282
5:40:00	0.02	1.03	16.58	0.00	0.33	154.20	1701	1007	1302	1282
5:44:00	0.02	1.00	16.27	0.00	0.33	154.20	1730	1007	1302	1282
5:48:00	0.02	1.02	16.21	0.00	0.33	154.20	1730	1007	1306	1282
5:52:00	0.02	0.96	16.26	0.00	0.33	154.20	1730	1007	1307	1282
5:56:00	0.02	0.89	16.39	0.00	0.33	154.20	1730	1007	1334	1282
6:00:00	0.02	0.82	16.31	0.00	0.33	152.70	1737	1022	1316	1302

D102904.XLS

10/29/91 4:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
4:00:00	786	743	370	376	144.30	2.59	10.11	0	513	4
4:04:00	768	743	370	376	144.30	2.88	10.11	0	540	4
4:08:00	768	762	370	376	144.30	2.88	9.82	0	540	4
4:12:00	784	746	370	376	144.30	2.88	9.82	0	520	4
4:16:00	763	746	370	376	144.30	3.20	9.82	0	542	4
4:20:00	777	762	370	376	153.40	2.25	10.16	0	523	4
4:24:00	791	747	370	376	166.10	4.71	8.74	0	396	4
4:28:00	772	763	370	376	167.40	4.18	9.23	0	479	4
4:32:00	792	747	370	376	159.40	4.20	8.99	0	457	4
4:36:00	773	761	370	376	159.40	4.20	8.99	0	445	4
4:40:00	792	761	370	376	156.20	4.20	8.99	0	488	4
4:44:00	776	761	370	376	159.10	4.62	8.99	0	440	4
4:48:00	790	761	370	376	159.10	4.62	8.74	0	430	4
4:52:00	790	761	370	376	155.60	4.05	9.09	0	484	4
4:56:00	790	761	370	376	152.50	3.96	9.38	0	532	4
5:00:00	790	761	370	376	149.10	3.96	9.33	0	552	4
5:04:00	790	761	370	376	149.10	3.57	9.33	0	615	4
5:08:00	790	760	370	376	146.10	3.15	9.82	0	669	4
5:12:00	790	760	370	376	146.10	2.93	9.82	0	701	4
5:16:00	790	775	370	376	146.10	3.25	9.82	0	689	4
5:20:00	790	775	370	376	146.10	3.25	9.82	0	703	4
5:24:00	790	775	370	376	148.80	3.25	9.82	0	723	4
5:28:00	790	775	370	376	148.80	3.25	9.82	0	706	4
5:32:00	790	775	370	376	148.80	3.25	9.82	0	694	4
5:36:00	790	775	370	376	148.80	3.57	9.57	0	659	4
5:40:00	790	775	370	376	148.80	3.57	9.57	0	657	4
5:44:00	790	775	370	376	148.80	3.57	9.57	0	696	4
5:48:00	790	775	370	376	148.80	3.57	9.57	0	662	4
5:52:00	790	775	370	376	148.80	3.57	9.57	0	689	4
5:56:00	790	775	370	376	148.80	3.57	9.57	0	689	4
6:00:00	791	770	371	377	147.70	4.20	9.43	0	650	3

D102906.XLS

10/29/91 6:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
6:00:00	0.02	0.82	16.31	0.00	0.33	152.70	1737	1022	1316	1302
6:04:00	0.02	0.87	16.20	0.00	0.33	152.70	1737	1022	1286	1302
6:08:00	0.02	0.93	16.19	0.00	0.33	152.70	1737	1016	1335	1302
6:12:00	0.02	0.98	16.61	0.00	0.33	152.70	1737	978	1335	1302
6:16:00	0.02	1.02	16.61	0.00	0.33	152.70	1737	1009	1335	1302
6:20:00	0.02	1.00	16.64	0.00	0.33	152.70	1737	1009	1335	1302
6:24:00	0.02	0.99	16.71	0.00	0.33	152.70	1769	1019	1366	1330
6:28:00	0.02	0.93	16.72	0.00	0.33	152.70	1769	1019	1359	1330
6:32:00	0.02	0.76	15.96	0.00	0.33	152.70	1744	1019	1363	1330
6:36:00	0.02	0.75	15.70	0.00	0.33	152.70	1744	1019	1363	1330
6:40:00	0.02	0.86	15.70	0.00	0.33	152.70	1711	1019	1322	1330
6:44:00	0.02	0.92	15.70	0.00	0.33	152.70	1711	1026	1347	1330
6:48:00	0.02	0.98	15.70	0.00	0.33	152.70	1711	1029	1344	1330
6:52:00	0.02	0.95	15.99	0.00	0.33	152.70	1711	1029	1344	1330
6:56:00	0.02	0.90	15.68	0.00	0.33	152.70	1711	1029	1356	1330
7:00:00	0.02	0.85	15.96	0.00	0.33	152.70	1711	1002	1356	1330
7:04:00	0.02	0.77	15.71	0.00	0.33	152.70	1711	1002	1298	1330
7:08:00	0.02	0.80	15.71	0.00	0.33	152.70	1711	1002	1344	1330
7:12:00	0.02	0.80	15.96	0.00	0.33	152.70	1711	1002	1344	1330
7:16:00	0.02	0.78	16.00	0.00	0.33	152.70	1711	1002	1347	1330
7:20:00	0.02	0.84	15.72	0.00	0.33	152.70	1711	1002	1347	1330
7:24:00	0.02	0.88	15.97	0.00	0.33	152.70	1711	1002	1347	1330
7:28:00	0.02	0.96	15.97	0.00	0.33	152.70	1711	1002	1362	1330
7:32:00	0.02	0.91	15.97	0.00	0.33	152.70	1711	1030	1355	1330
7:36:00	0.02	0.86	15.66	0.00	0.33	152.70	1737	992	1355	1330
7:40:00	0.02	0.76	15.66	0.00	0.33	152.70	1737	1021	1318	1330
7:44:00	0.02	0.82	15.94	0.00	0.33	152.70	1737	1021	1356	1330
7:48:00	0.02	0.88	15.64	0.00	0.33	152.70	1737	1021	1350	1330
7:52:00	0.02	0.93	15.64	0.00	0.33	152.70	1737	974	1350	1330
7:56:00	0.02	0.93	15.64	0.00	0.33	152.70	1737	1029	1350	1330
8:00:00	0.01	0.88	15.73	0.00	0.33	153.30	1762	1020	1390	1341

D102906.XLS

10/29/91 6:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
6:00:00	791	770	371	377	147.70	4.20	9.43	0	650	3
6:04:00	791	770	371	377	147.70	2.93	9.43	0	647	3
6:08:00	804	770	371	377	147.70	3.93	14.51	296	5	3
6:12:00	804	770	371	377	147.70	3.86	9.28	0	637	3
6:16:00	804	770	371	377	147.70	3.47	9.52	0	701	3
6:20:00	804	770	371	377	147.70	3.03	9.77	0	740	3
6:24:00	804	770	371	377	147.70	2.96	9.77	0	779	3
6:28:00	804	770	371	377	147.70	2.93	9.77	0	772	3
6:32:00	804	770	371	377	147.70	3.66	9.38	0	669	3
6:36:00	804	770	371	377	147.70	4.81	8.94	0	493	3
6:40:00	804	770	371	377	147.70	4.54	8.94	0	508	3
6:44:00	804	770	371	377	147.70	3.59	9.33	0	669	3
6:48:00	804	770	371	377	147.70	2.91	9.82	0	735	3
6:52:00	804	770	371	377	147.70	3.18	9.82	0	735	3
6:56:00	804	770	371	377	147.70	2.83	9.82	0	755	3
7:00:00	804	770	371	377	147.70	3.20	9.82	0	747	3
7:04:00	804	770	371	377	147.70	3.20	9.82	0	730	3
7:08:00	804	770	371	377	147.70	3.20	9.82	0	730	3
7:12:00	804	770	371	377	147.70	3.20	9.82	0	728	3
7:16:00	804	770	371	377	147.70	3.20	9.82	0	747	3
7:20:00	791	770	371	377	147.70	3.20	9.82	0	730	3
7:24:00	791	770	371	377	147.70	3.25	9.82	0	733	3
7:28:00	791	770	334	348	147.70	2.93	9.82	0	733	3
7:32:00	791	770	303	321	147.70	2.93	9.82	0	733	3
7:36:00	791	770	303	321	147.70	2.83	9.82	0	745	3
7:40:00	791	770	335	349	147.70	2.86	9.82	0	730	3
7:44:00	791	770	365	349	147.70	2.86	9.82	0	745	3
7:48:00	791	770	365	376	147.70	3.15	9.82	0	745	3
7:52:00	791	770	365	376	147.70	2.81	9.82	0	745	3
7:56:00	816	788	365	376	147.70	2.81	10.06	0	762	3
8:00:00	849	826	373	380	149.00	2.71	10.11	0	759	1

D102908.XLS

10/29/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.01	0.88	15.73	0.00	0.33	153.30	1762	1020	1390	1341
8:04:00	0.01	0.84	15.73	0.00	0.33	156.10	1762	1052	1390	1341
8:08:00	0.01	0.78	15.73	0.00	0.33	156.10	1762	1052	1390	1341
8:12:00	0.01	0.83	15.73	0.00	0.33	156.10	1793	1079	1390	1341
8:16:00	0.01	0.88	15.73	0.00	0.35	156.10	1793	1079	1390	1368
8:20:00	0.01	0.87	15.73	0.00	0.33	156.10	1793	1079	1390	1368
8:24:00	0.01	0.90	15.73	0.00	0.33	156.10	1793	1079	1390	1368
8:28:00	0.01	0.95	15.44	0.00	0.33	156.10	1793	1109	1390	1368
8:32:00	0.04	0.92	15.71	0.00	0.33	156.10	1823	1109	1420	1368
8:36:00	0.04	0.91	15.71	0.00	0.33	156.10	1823	1109	1420	1395
8:40:00	0.04	0.88	15.71	0.00	0.33	156.10	1823	1109	1420	1395
8:44:00	0.04	0.86	15.71	0.00	0.33	156.10	1823	1109	1449	1395
8:48:00	0.04	0.86	16.39	0.00	0.34	130.30	1857	1037	1121	1395
8:52:00	0.04	0.82	16.01	0.00	0.33	107.60	1907	1064	1207	1395
8:56:00	0.04	0.69	16.01	0.00	0.33	95.30	1907	1096	1309	1421
9:00:00	0.04	0.68	15.60	0.00	0.34	88.50	1907	1096	1407	1446
9:04:00	0.04	0.70	15.60	0.00	0.33	85.90	1907	1096	1452	1446
9:08:00	0.04	0.74	15.60	0.00	0.33	85.90	1907	1096	1513	1446
9:12:00	0.04	0.81	15.60	0.00	0.34	117.20	1907	1068	1540	1479
9:16:00	0.04	0.79	15.26	0.00	0.32	140.50	1881	1094	1540	1479
9:20:00	0.04	0.76	15.26	0.00	0.33	156.80	1856	1099	1511	1479
9:24:00	0.04	0.71	15.00	0.00	0.33	169.00	1818	1134	1486	1451
9:28:00	0.04	0.67	15.00	0.00	0.33	177.60	1786	1163	1486	1425
9:32:00	0.04	0.69	15.37	0.00	0.33	180.40	1786	1163	1443	1425
9:36:00	0.04	0.68	37	0.00	0.33	180.40	1786	1163	1443	1394
9:40:00	0.04	0.72	15.05	0.00	0.33	189.30	1757	1163	1443	1394
9:44:00	0.04	0.74	15.05	0.00	0.33	192.40	1757	1163	1443	1394
9:48:00	0.04	0.78	14.69	0.00	0.34	192.40	1731	1163	1390	1394
9:52:00	0.04	0.80	15.17	0.00	0.33	188.60	1761	1163	1375	1368
9:56:00	3.17	0.82	14.97	0.00	0.33	185.80	1761	1163	1395	1368
10:00:00	2.68	0.84	15.81	0.00	0.35	182.90	1768	1167	1371	1379

D102908.XLS

10/29/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	849	826	373	380	149.00	2.71	10.11	0	759	1
8:04:00	862	859	373	380	149.00	2.69	10.16	0	772	1
8:08:00	884	875	373	380	152.10	2.69	9.92	0	772	1
8:12:00	884	888	373	380	152.10	3.03	9.92	0	777	1
8:16:00	884	903	373	380	152.10	3.10	9.92	0	789	1
8:20:00	922	903	373	380	152.10	3.05	9.92	0	791	1
8:24:00	922	916	373	380	152.10	3.00	9.92	0	791	1
8:28:00	922	916	373	380	152.10	2.74	9.96	0	794	1
8:32:00	937	916	373	380	152.10	2.74	9.96	0	799	1
8:36:00	937	929	373	380	152.10	2.74	10.26	0	803	1
8:40:00	937	929	373	380	152.10	2.74	10.26	0	816	1
8:44:00	937	929	373	380	152.10	2.74	10.26	0	801	1
8:48:00	920	929	373	380	122.50	2.74	9.82	0	764	1
8:52:00	892	914	373	380	99.50	3.00	9.82	0	650	1
8:56:00	878	898	373	380	87.30	3.71	9.33	0	493	1
9:00:00	878	884	373	380	80.00	4.74	8.69	0	364	1
9:04:00	878	884	373	380	80.00	5.08	8.89	0	337	1
9:08:00	878	884	373	380	80.00	4.79	9.18	0	354	1
9:12:00	893	884	373	380	113.10	3.13	9.82	0	525	1
9:16:00	924	898	373	380	136.50	3.05	9.82	0	654	1
9:20:00	938	913	373	380	152.60	3.81	9.33	0	654	1
9:24:00	953	926	373	380	167.60	4.20	9.33	0	640	1
9:28:00	953	939	373	380	174.90	4.20	9.33	0	625	1
9:32:00	966	939	373	380	174.90	4.20	9.33	0	584	1
9:36:00	966	955	373	380	174.90	4.62	8.99	0	557	1
9:40:00	966	955	373	380	185.40	4.03	9.38	0	598	1
9:44:00	982	971	373	380	188.50	3.61	9.67	0	657	1
9:48:00	982	971	373	380	188.50	3.37	9.72	0	701	1
9:52:00	982	971	373	380	185.40	3.00	9.77	0	701	1
9:56:00	982	971	373	380	182.10	3.42	9.52	0	713	1
10:00:00	987	975	373	389	178.40	3.76	9.48	0	698	1

D102910.XLS

10/29/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	2.68	0.84	15.81	0.00	0.35	182.90	1768	1167	1371	1379
10:04:00	2.87	0.87	16.05	0.00	0.33	180.00	1768	1167	1375	1379
10:08:00	0.73	0.84	15.50	0.00	0.33	177.00	1797	1167	1384	1379
10:12:00	0.07	0.85	15.90	0.00	0.33	174.40	1797	1167	1415	1379
10:16:00	0.84	0.82	15.63	0.00	0.33	174.40	1797	1167	1435	1379
10:20:00	0.49	0.85	15.63	0.00	0.33	174.40	1797	1167	1435	1379
10:24:00	0.52	0.88	15.63	0.00	0.33	174.40	1797	1167	1429	1407
10:28:00	1.20	0.88	15.63	0.00	0.33	174.40	1797	1167	1429	1407
10:32:00	0.06	0.86	15.30	0.00	0.33	174.40	1797	1167	1457	1407
10:36:00	0.38	0.83	15.30	0.00	0.33	178.10	1797	1167	1457	1407
10:40:00	0.37	0.79	15.04	0.00	0.33	181.40	1797	1167	1457	1407
10:44:00	0.60	0.77	15.04	0.00	0.32	184.50	1797	1167	1430	1407
10:48:00	0.48	0.69	15.35	0.00	0.32	184.50	1765	1167	1430	1407
10:52:00	0.54	0.72	15.63	0.00	0.34	187.10	1765	1167	1430	1407
10:56:00	0.33	0.75	15.63	0.00	0.35	187.10	1765	1167	1430	1407
11:00:00	1.04	0.79	15.28	0.00	0.34	187.10	1765	1167	1392	1407
11:04:00	0.91	0.83	15.28	0.00	0.34	187.10	1791	1167	1417	1407
11:08:00	0.00	0.85	15.68	0.00	0.34	187.10	1791	1167	1443	1407
11:12:00	0.06	0.88	15.68	0.00	0.33	187.10	1791	1195	1443	1407
11:16:00	0.20	0.84	15.68	0.00	0.33	187.10	1791	1195	1443	1407
11:20:00	0.37	0.80	15.28	0.00	0.33	187.10	1791	1195	1422	1407
11:24:00	0.05	0.76	15.60	0.00	0.34	187.10	1791	1195	1422	1407
11:28:00	0.02	0.69	15.60	0.00	0.33	187.10	1791	1195	1422	1407
11:32:00	0.02	0.73	15.25	0.00	0.33	187.10	1791	1195	1431	1407
11:36:00	0.02	0.76	15.52	0.00	0.34	187.10	1791	1195	1431	1407
11:40:00	0.02	0.78	15.83	0.00	0.34	187.10	1791	1195	1431	1407
11:44:00	0.02	0.82	15.36	0.00	0.33	187.10	1791	1195	1431	1407
11:48:00	0.02	0.88	15.65	0.00	0.33	187.10	1791	1195	1431	1407
11:52:00	0.43	0.84	15.32	0.00	0.33	187.10	1791	1195	1431	1407
11:56:00	0.28	0.81	15.32	0.00	0.34	187.10	1791	1195	1431	1407
12:00:00	0.47	0.77	15.70	0.00	0.33	186.60	1795	1210	1441	1417

D102910.XLS

10/29/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	987	975	373	389	178.40	3.76	9.48	0	698	1
10:04:00	987	975	373	389	175.50	3.76	9.48	0	725	1
10:08:00	987	975	373	389	172.60	3.47	9.72	0	759	1
10:12:00	987	975	373	389	172.60	3.47	9.72	0	784	1
10:16:00	987	975	373	389	169.60	3.18	9.96	0	794	1
10:20:00	987	975	373	389	169.60	2.91	9.96	0	808	1
10:24:00	987	975	373	389	169.60	2.91	9.96	0	816	1
10:28:00	987	975	373	389	169.60	2.91	10.21	0	818	1
10:32:00	987	975	373	389	172.70	2.54	10.21	0	808	1
10:36:00	987	975	373	389	176.10	2.30	10.45	0	796	1
10:40:00	987	991	373	389	178.70	2.37	10.45	0	789	1
10:44:00	987	991	373	389	181.30	2.76	10.35	0	786	1
10:48:00	987	991	373	389	181.30	2.76	10.11	0	777	1
10:52:00	987	991	373	389	181.30	2.76	10.11	0	791	1
10:56:00	987	991	373	389	181.30	3.03	10.11	0	799	1
11:00:00	987	991	373	389	181.30	3.05	10.11	0	799	1
11:04:00	987	991	373	389	181.30	3.03	10.11	0	781	1
11:08:00	987	991	373	389	181.30	3.03	10.11	0	794	1
11:12:00	987	991	373	389	181.30	3.03	10.11	0	799	1
11:16:00	1004	1005	373	389	181.30	2.69	10.11	0	801	1
11:20:00	1004	1005	373	389	181.30	2.69	10.11	0	791	1
11:24:00	1004	1005	373	389	181.30	3.05	10.11	0	791	1
11:28:00	1004	1005	373	389	181.30	3.05	9.96	0	772	1
11:32:00	1018	1005	373	389	181.30	3.05	9.96	0	777	1
11:36:00	1018	1005	373	389	181.30	3.10	9.96	0	796	1
11:40:00	1018	1005	373	389	181.30	3.05	9.92	0	796	1
11:44:00	1018	1005	373	389	181.30	3.00	9.92	0	781	1
11:48:00	1018	1005	373	389	181.30	3.00	9.96	0	789	1
11:52:00	1018	1005	373	389	181.30	2.66	9.96	0	806	1
11:56:00	1018	991	373	389	181.30	2.71	9.96	0	801	1
12:00:00	1030	989	367	392	182.40	2.76	10.16	0	794	3

D102912.XLS

10/29/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.47	0.77	15.70	0.00	0.33	186.60	1795	1210	1441	1417
12:04:00	0.55	0.68	15.25	0.00	0.33	186.60	1795	1210	1441	1417
12:08:00	0.60	0.70	15.61	0.00	0.33	186.60	1795	1210	1441	1417
12:12:00	3.13	0.73	15.26	0.00	0.33	186.60	1795	1210	1444	1417
12:16:00	0.00	0.76	15.60	0.00	0.33	186.60	1795	1210	1444	1417
12:20:00	0.00	0.80	14.86	0.00	0.33	186.60	1795	1210	1444	1417
12:24:00	0.36	0.88	15.59	0.00	0.33	186.60	1795	1210	1444	1417
12:28:00	1.64	0.87	15.59	0.00	0.33	186.60	1795	1210	1444	1417
12:32:00	1.74	0.77	15.59	0.00	0.33	186.60	1795	1210	1444	1417
12:36:00	3.70	0.65	15.59	0.00	0.33	186.60	1795	1210	1444	1417
12:40:00	0.05	0.68	15.71	0.00	0.33	186.60	1795	1210	1444	1417
12:44:00	0.00	0.74	15.45	0.00	0.33	186.60	1768	1210	1444	1417
12:48:00	0.00	0.89	15.40	0.00	0.33	186.60	1768	1210	1453	1417
12:52:00	0.03	0.80	15.65	0.00	0.33	186.60	1768	1210	1453	1417
12:56:00	0.63	0.66	15.83	0.00	0.34	186.60	1768	1210	1446	1417
13:00:00	0.67	0.71	15.67	0.00	0.33	186.60	1768	1210	1432	1417
13:04:00	0.54	0.78	15.34	0.00	0.33	186.60	1768	1210	1432	1417
13:08:00	0.59	0.89	15.19	0.00	0.33	186.60	1768	1210	1432	1417
13:12:00	0.52	0.78	15.79	0.00	0.34	186.60	1768	1210	1432	1417
13:16:00	0.52	0.67	15.37	0.00	0.33	186.60	1768	1210	1432	1417
13:20:00	0.44	0.71	15.37	0.00	0.33	186.60	1768	1210	1432	1417
13:24:00	0.39	0.78	15.37	0.00	0.34	186.60	1741	1210	1432	1417
13:28:00	0.39	0.90	15.66	0.00	0.33	186.60	1741	1210	1432	1417
13:32:00	0.34	0.79	15.66	0.00	0.34	186.60	1741	1210	1432	1417
13:36:00	0.34	0.67	15.66	0.00	0.33	186.60	1741	1210	1432	1417
13:40:00	0.46	0.71	15.39	0.00	0.33	186.60	1741	1210	1433	1417
13:44:00	0.49	0.79	15.39	0.00	0.33	186.60	1741	1210	1433	1417
13:48:00	0.44	0.88	15.78	0.00	0.33	186.60	1741	1210	1438	1417
13:52:00	0.30	0.67	15.78	0.00	0.33	186.60	1741	1210	1438	1417
13:56:00	0.41	0.69	15.44	0.00	0.33	186.60	1741	1210	1438	1417
14:00:00	0.33	0.75	15.36	0.00	0.33	187.30	1745	1205	1434	1404

D102912.XLS

10/29/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	1030	989	367	392	182.40	2.76	10.16	0	794	3
12:04:00	1030	989	367	392	182.40	2.78	10.16	0	774	3
12:08:00	1030	989	367	392	182.40	2.78	10.16	0	772	3
12:12:00	1030	989	367	392	182.40	3.08	10.16	0	784	3
12:16:00	1030	989	367	392	182.40	3.08	9.92	0	801	3
12:20:00	1030	989	367	392	182.40	3.03	9.87	0	789	3
12:24:00	1030	989	367	392	182.40	3.00	9.92	0	789	3
12:28:00	1030	989	367	392	182.40	2.71	10.16	0	794	3
12:32:00	1030	989	367	392	182.40	3.13	9.87	0	816	3
12:36:00	1030	989	367	392	182.40	3.88	9.43	0	698	3
12:40:00	1030	989	367	392	182.40	4.20	9.18	0	647	3
12:44:00	1030	989	367	392	182.40	4.30	9.09	0	608	3
12:48:00	1030	989	367	392	182.40	3.96	9.33	0	625	3
12:52:00	1012	989	367	392	182.40	3.98	9.33	0	657	3
12:56:00	1012	989	367	392	182.40	4.32	9.33	0	642	3
13:00:00	1012	989	367	392	182.40	4.32	9.09	0	586	3
13:04:00	1012	989	367	392	182.40	4.32	9.09	0	581	3
13:08:00	1012	989	367	392	182.40	4.32	9.09	0	608	3
13:12:00	1012	989	367	392	182.40	4.05	9.09	0	640	3
13:16:00	1012	989	367	392	182.40	4.15	9.09	0	620	3
13:20:00	999	989	367	392	182.40	4.47	9.09	0	579	3
13:24:00	999	989	367	392	182.40	4.45	9.09	0	559	3
13:28:00	999	989	367	392	182.40	4.15	9.09	0	603	3
13:32:00	999	989	367	392	182.40	4.23	9.09	0	613	3
13:36:00	999	989	367	392	182.40	4.25	9.09	0	606	3
13:40:00	999	989	367	392	182.40	4.54	9.09	0	562	3
13:44:00	999	989	367	392	182.40	4.40	9.09	0	562	3
13:48:00	999	989	367	392	182.40	4.40	9.09	0	606	3
13:52:00	999	989	367	392	182.40	4.10	9.09	0	628	3
13:56:00	999	989	367	392	182.40	4.40	9.09	0	579	3
14:00:00	1000	984	372	391	183.30	4.49	8.89	0	552	4

D102914.XLS

10/29/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.33	0.75	15.36	0.00	0.33	187.30	1745	1205	1434	1404
14:04:00	0.29	0.87	15.36	0.00	0.33	187.30	1745	1205	1434	1404
14:08:00	0.58	0.76	15.43	0.00	0.33	187.30	1745	1205	1434	1404
14:12:00	2.35	0.67	15.16	0.00	0.33	187.30	1745	1205	1406	1404
14:16:00	0.04	0.73	15.50	0.00	0.34	182.40	1745	1205	1328	1404
14:20:00	0.04	0.94	16.08	0.00	0.34	171.60	1745	1205	1345	1404
14:24:00	0.04	0.83	16.08	0.00	0.34	164.40	1771	1205	1376	1404
14:28:00	4.00	0.68	15.43	0.00	0.32	161.10	1771	1205	1366	1404
14:32:00	0.03	0.72	15.75	0.00	0.34	158.40	1771	1179	1451	1404
14:36:00	0.03	0.75	15.75	0.00	0.34	155.60	1771	1179	1444	1404
14:40:00	0.18	0.86	15.61	0.00	0.34	155.60	1771	1179	1444	1404
14:44:00	0.18	0.75	15.61	0.00	0.34	155.60	1771	1179	1444	1432
14:48:00	0.05	0.68	15.61	0.00	0.33	155.60	1771	1179	1444	1432
14:52:00	0.50	0.72	15.61	0.00	0.33	155.60	1771	1179	1444	1432
14:56:00	0.45	0.93	15.33	0.00	0.34	153.00	1771	1179	1444	1432
15:00:00	0.37	0.83	15.68	0.00	0.33	153.00	1771	1179	1459	1432
15:04:00	0.47	0.67	15.67	0.00	0.33	153.00	1771	1179	1432	1432
15:08:00	0.43	0.70	15.28	0.00	0.34	153.00	1771	1179	1435	1432
15:12:00	0.43	0.75	15.31	0.00	0.34	153.00	1771	1179	1435	1432
15:16:00	0.39	0.89	15.61	0.00	0.32	153.00	1771	1179	1436	1432
15:20:00	0.60	0.77	15.29	0.00	0.33	153.00	1771	1179	1463	1432
15:24:00	0.49	0.68	15.82	0.00	0.34	153.00	1771	1179	1463	1432
15:28:00	0.44	0.72	15.52	0.00	0.34	153.00	1771	1179	1463	1432
15:32:00	0.38	0.93	15.52	0.00	0.34	153.00	1771	1179	1461	1432
15:36:00	0.38	0.82	15.52	0.00	0.35	153.00	1771	1179	1451	1432
15:40:00	0.38	0.67	15.52	0.00	0.33	153.00	1771	1179	1451	1432
15:44:00	0.37	0.71	15.70	0.00	0.32	153.00	1771	1179	1452	1432
15:48:00	0.32	0.77	15.70	0.00	0.35	153.00	1771	1179	1457	1432
15:52:00	0.32	0.86	15.70	0.00	0.33	153.00	1771	1179	1466	1432
15:56:00	0.28	0.77	15.42	0.00	0.33	150.30	1771	1179	1460	1432
16:00:00	0.29	0.68	15.47	0.00	0.34	150.10	1792	1183	1429	1431

D102914.XLS

10/29/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	1000	984	372	391	183.30	4.49	8.89	0	552	4
14:04:00	1000	984	372	391	183.30	4.20	9.13	0	591	4
14:08:00	1000	984	372	391	183.30	4.18	9.13	0	613	4
14:12:00	1000	984	372	391	183.30	4.45	9.13	0	586	4
14:16:00	1000	984	372	391	180.50	4.49	9.13	0	559	4
14:20:00	1000	984	372	391	166.90	4.59	8.84	0	488	4
14:24:00	1000	970	372	391	159.80	4.59	8.84	0	518	4
14:28:00	985	970	372	391	156.50	4.54	8.84	0	540	4
14:32:00	985	970	372	391	153.80	4.54	8.84	0	523	4
14:36:00	985	970	372	391	150.40	4.54	8.84	0	476	4
14:40:00	985	970	372	391	150.40	4.98	8.60	0	432	4
14:44:00	985	970	372	391	150.40	4.88	8.60	0	457	4
14:48:00	985	957	372	391	150.40	4.91	8.60	0	447	4
14:52:00	985	957	372	391	150.40	4.91	8.60	0	418	4
14:56:00	972	957	372	391	150.40	4.91	8.60	0	420	4
15:00:00	972	957	372	391	150.40	4.91	8.60	0	466	4
15:04:00	972	957	372	391	150.40	4.91	8.84	0	474	4
15:08:00	972	957	372	391	150.40	4.91	8.84	0	447	4
15:12:00	972	957	372	391	147.80	4.91	8.60	0	405	4
15:16:00	972	957	372	391	147.80	4.91	8.60	0	405	4
15:20:00	972	957	372	391	147.80	4.84	8.60	0	454	4
15:24:00	972	957	372	391	147.80	4.91	8.60	0	427	4
15:28:00	972	957	372	391	147.80	5.20	8.60	0	401	4
15:32:00	972	957	372	391	147.80	4.81	8.84	0	423	4
15:36:00	972	957	372	391	147.80	4.81	8.84	0	479	4
15:40:00	972	957	372	391	147.80	4.81	8.84	0	484	4
15:44:00	972	957	372	391	147.80	4.81	8.84	0	447	4
15:48:00	972	957	372	391	147.80	4.81	8.84	0	445	4
15:52:00	972	957	372	391	147.80	4.81	8.84	0	488	4
15:56:00	972	957	372	391	147.80	4.49	8.84	0	510	4
16:00:00	966	944	369	392	145.60	4.62	8.99	0	508	1

D102916.XLS

10/29/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.29	0.68	15.47	0.00	0.34	150.10	1792	1183	1429	1431
16:04:00	0.29	0.73	15.35	0.00	0.33	150.10	1792	1183	1462	1431
16:08:00	0.29	0.89	15.62	0.00	0.33	150.10	1792	1183	1471	1431
16:12:00	0.29	0.74	15.62	0.00	0.33	150.10	1792	1183	1443	1431
16:16:00	0.22	0.69	15.62	0.00	0.33	150.10	1792	1183	1443	1431
16:20:00	0.22	0.73	15.62	0.00	0.33	150.10	1792	1183	1443	1431
16:24:00	0.22	0.87	15.62	0.00	0.34	150.10	1792	1183	1443	1431
16:28:00	0.22	0.80	15.62	0.00	0.33	150.10	1792	1187	1469	1431
16:32:00	0.22	0.67	15.64	0.00	0.33	150.10	1792	1187	1469	1431
16:36:00	0.22	0.71	15.28	0.00	0.33	152.80	1792	1187	1469	1431
16:40:00	0.18	0.75	15.54	0.00	0.33	152.80	1792	1187	1469	1431
16:44:00	0.18	0.85	15.29	0.00	0.33	152.80	1792	1187	1443	1431
16:48:00	0.18	0.67	15.57	0.00	0.33	152.80	1792	1187	1443	1431
16:52:00	0.18	0.69	15.31	0.00	0.33	152.80	1792	1155	1429	1431
16:56:00	0.18	0.75	15.31	0.00	0.33	152.80	1792	1180	1463	1431
17:00:00	0.18	0.81	15.64	0.00	0.33	152.80	1792	1180	1463	1431
17:04:00	0.18	0.66	15.29	0.00	0.33	156.50	1792	1180	1463	1431
17:08:00	0.18	0.69	15.63	0.00	0.33	159.70	1792	1180	1463	1431
17:12:00	0.18	0.76	15.16	0.00	0.34	167.50	1767	1180	1463	1431
17:16:00	0.18	0.73	15.51	0.00	0.33	175.00	1735	1180	1463	1431
17:20:00	0.19	0.66	15.17	0.00	0.33	178.10	1735	1180	1463	1431
17:24:00	0.19	0.70	15.50	0.00	0.33	181.10	1702	1180	1463	1431
17:28:00	0.23	0.87	15.07	0.00	0.33	181.10	1702	1180	1429	1403
17:32:00	0.23	0.68	15.64	0.00	0.33	181.10	1702	1180	1429	1403
17:36:00	0.23	0.66	15.38	0.00	0.33	183.90	1702	1180	1429	1403
17:40:00	0.23	0.68	15.71	0.00	0.33	183.90	1702	1180	1419	1403
17:44:00	0.23	0.82	15.29	0.00	0.33	183.90	1702	1180	1419	1403
17:48:00	0.23	0.66	15.61	0.00	0.34	183.90	1673	1180	1407	1375
17:52:00	0.23	0.69	15.61	0.00	0.33	183.90	1673	1180	1376	1375
17:56:00	0.23	0.81	15.61	0.00	0.32	183.90	1673	1180	1411	1375
18:00:00	0.21	0.77	15.44	0.00	0.34	179.80	1680	1166	1363	1374

D102916.XLS

10/29/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	966	944	369	392	145.60	4.62	8.99	0	508	1
16:04:00	966	944	369	392	145.60	4.62	8.99	0	462	1
16:08:00	966	944	369	392	145.60	4.62	8.99	0	488	1
16:12:00	966	944	369	392	145.60	4.30	8.99	0	545	1
16:16:00	966	944	369	392	145.60	4.35	8.99	0	574	1
16:20:00	966	944	369	392	145.60	4.62	8.99	0	496	1
16:24:00	966	944	369	392	145.60	4.54	8.99	0	510	1
16:28:00	966	944	369	392	145.60	4.25	8.99	0	552	1
16:32:00	982	944	369	392	145.60	4.52	8.99	0	559	1
16:36:00	982	944	369	392	148.40	4.49	8.99	0	532	1
16:40:00	982	944	369	392	148.40	4.52	8.99	0	510	1
16:44:00	968	944	369	392	148.40	4.23	8.99	0	564	1
16:48:00	968	944	369	392	148.40	4.15	9.23	0	584	1
16:52:00	968	944	369	392	148.40	4.42	9.23	0	557	1
16:56:00	968	944	369	392	148.40	4.47	8.94	0	523	1
17:00:00	968	944	369	392	148.40	4.18	8.99	0	564	1
17:04:00	968	944	369	392	153.80	4.05	9.33	0	596	1
17:08:00	968	944	369	392	156.60	4.35	9.28	0	559	1
17:12:00	968	944	369	392	163.50	4.45	8.94	0	525	1
17:16:00	968	958	369	392	170.10	3.86	9.33	0	620	1
17:20:00	982	958	369	392	173.10	4.23	9.33	0	611	1
17:24:00	982	958	369	428	175.80	4.23	8.99	0	549	1
17:28:00	982	958	369	428	178.40	4.23	9.23	0	567	1
17:32:00	982	958	369	428	178.40	4.20	9.18	0	591	1
17:36:00	982	958	369	401	178.40	4.57	8.94	0	545	1
17:40:00	982	958	369	401	178.40	4.76	8.94	0	496	1
17:44:00	982	958	369	401	178.40	4.45	8.94	0	540	1
17:48:00	982	958	369	401	178.40	4.42	8.94	0	559	1
17:52:00	982	958	369	401	178.40	4.71	8.94	0	528	1
17:56:00	982	958	369	401	178.40	3.79	9.33	0	596	1
18:00:00	984	967	370	390	175.80	3.74	9.43	0	654	1

D102918.XLS

10/29/91 18:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
18:00:00	0.21	0.77	15.44	0.00	0.34	179.80	1680	1166	1363	1374
18:04:00	0.21	0.66	15.44	0.00	0.33	179.80	1680	1166	1363	1374
18:08:00	0.25	0.71	15.83	0.00	0.33	179.80	1680	1166	1395	1374
18:12:00	0.25	0.78	15.83	0.00	0.34	177.00	1680	1166	1395	1374
18:16:00	0.25	0.76	15.41	0.00	0.32	177.00	1680	1166	1363	1374
18:20:00	0.25	0.67	15.41	0.00	0.33	177.00	1706	1166	1390	1374
18:24:00	0.25	0.72	15.75	0.00	0.34	177.00	1706	1166	1390	1374
18:28:00	0.25	0.92	15.73	0.00	0.32	177.00	1706	1166	1316	1374
18:32:00	0.25	0.71	16.18	0.00	0.33	173.50	1732	1192	1407	1374
18:36:00	0.30	0.68	16.18	0.00	0.35	173.50	1732	1192	1373	1374
18:40:00	0.30	0.75	15.92	0.00	0.32	173.50	1732	1192	1408	1374
18:44:00	0.30	0.89	16.28	0.00	0.32	173.50	1732	1192	1408	1374
18:48:00	0.30	0.70	15.92	0.00	0.35	170.30	1732	1192	1363	1374
18:52:00	0.30	0.70	16.33	0.00	0.32	166.80	1732	1192	1403	1374
18:56:00	0.30	0.76	16.25	0.00	0.33	166.80	1732	1192	1420	1374
19:00:00	0.30	0.86	15.75	0.00	0.33	169.40	1732	1192	1420	1374
19:04:00	0.30	0.72	16.01	0.00	0.32	172.30	1732	1192	1420	1374
19:08:00	0.30	0.67	16.01	0.00	0.33	172.30	1732	1192	1420	1374
19:12:00	0.30	0.71	15.75	0.00	0.33	172.30	1732	1192	1390	1374
19:16:00	0.30	0.79	16.10	0.00	0.33	172.30	1732	1192	1417	1374
19:20:00	0.30	0.76	16.10	0.00	0.33	172.30	1732	1192	1375	1374
19:24:00	0.30	0.66	16.10	0.00	0.33	175.00	1732	1192	1372	1374
19:28:00	0.30	0.71	16.10	0.00	0.33	175.00	1732	1192	1409	1374
19:32:00	0.30	0.81	16.10	0.00	0.33	175.00	1732	1192	1384	1374
19:36:00	0.30	0.76	16.10	0.00	0.33	175.00	1732	1192	1384	1374
19:40:00	0.30	0.67	16.10	0.00	0.33	175.00	1732	1192	1379	1374
19:44:00	0.34	0.70	16.10	0.00	0.33	175.00	1732	1192	1411	1374
19:48:00	0.30	0.75	16.01	0.00	0.33	175.00	1732	1192	1382	1374
19:52:00	0.30	0.85	15.91	0.00	0.33	175.00	1732	1192	1408	1374
19:56:00	0.30	0.69	16.26	0.00	0.33	175.00	1732	1192	1408	1374
20:00:00	0.34	0.68	16.25	0.00	0.33	177.80	1737	1207	1405	1380

D102918.XLS

10/29/91 18:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
18:00:00	984	967	370	390	175.80	3.74	9.43	0	654	1
18:04:00	984	967	370	390	175.80	3.76	9.52	0	662	1
18:08:00	984	967	370	390	175.80	3.76	9.57	0	632	1
18:12:00	984	967	370	390	172.90	3.76	9.33	0	630	1
18:16:00	984	967	370	390	172.90	3.76	9.62	0	631	1
18:20:00	984	967	370	390	172.90	3.49	9.72	0	696	1
18:24:00	984	967	370	390	172.90	3.86	9.43	0	662	1
18:28:00	984	967	370	390	172.90	3.76	9.33	0	650	1
18:32:00	984	967	370	390	169.30	3.93	9.33	0	650	1
18:36:00	984	967	370	390	169.30	4.40	9.28	0	611	1
18:40:00	984	967	370	390	169.30	4.40	9.04	0	535	1
18:44:00	984	967	309	458	169.30	4.40	9.04	0	537	1
18:48:00	984	967	339	487	166.30	4.25	9.04	0	584	1
18:52:00	984	967	365	487	162.60	4.42	9.04	0	535	1
18:56:00	984	967	365	487	162.60	4.81	8.79	0	481	1
19:00:00	984	967	365	487	165.20	4.69	8.89	0	520	1
19:04:00	984	967	365	487	168.20	4.37	8.89	0	562	1
19:08:00	984	967	365	487	168.20	4.74	8.89	0	537	1
19:12:00	984	967	365	487	168.20	4.74	8.89	0	479	1
19:16:00	984	967	365	487	168.20	4.88	8.89	0	462	1
19:20:00	984	967	365	461	168.20	4.54	8.89	0	520	1
19:24:00	984	967	365	406	170.80	8.57	7.96	0	452	1
19:28:00	984	967	365	406	170.80	4.98	8.74	0	469	1
19:32:00	984	967	365	406	170.80	4.66	8.74	0	454	1
19:36:00	984	967	365	406	170.80	4.66	8.74	0	506	1
19:40:00	984	967	365	406	170.80	4.96	8.74	0	506	1
19:44:00	984	967	365	406	170.80	4.96	8.74	0	457	1
19:48:00	984	967	365	406	170.80	5.06	8.74	0	435	1
19:52:00	984	981	365	406	170.80	4.76	8.74	0	488	1
19:56:00	984	981	365	406	170.80	4.71	8.74	0	510	1
20:00:00	994	981	373	396	173.60	4.93	8.84	0	486	4

10/29/91 20:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
20:00:00	0.34	0.68	16.25	0.00	0.33	177.80	1737	1207	1405	1380
20:04:00	0.30	0.73	16.23	0.00	0.33	177.80	1737	1207	1407	1380
20:08:00	0.30	0.94	15.91	0.00	0.33	177.80	1737	1207	1405	1380
20:12:00	0.30	0.71	15.99	0.00	0.33	177.80	1737	1207	1405	1380
20:16:00	0.30	0.67	16.29	0.00	0.33	177.80	1737	1207	1405	1380
20:20:00	0.30	0.71	16.32	0.00	0.33	177.80	1737	1207	1403	1380
20:24:00	0.30	0.81	16.05	0.00	0.33	177.80	1737	1207	1403	1380
20:28:00	0.34	0.75	16.05	0.00	0.33	177.80	1737	1207	1398	1380
20:32:00	0.29	0.67	16.00	0.00	0.34	177.80	1737	1207	1398	1380
20:36:00	0.34	0.70	16.00	0.00	0.32	177.80	1737	1207	1398	1380
20:40:00	0.34	0.73	16.00	0.00	0.32	177.80	1737	1207	1398	1380
20:44:00	0.34	0.87	16.27	0.00	0.35	177.80	1737	1207	1406	1380
20:48:00	0.34	0.78	16.24	0.00	0.32	177.80	1737	1207	1406	1380
20:52:00	0.34	0.66	16.29	0.00	0.32	177.80	1737	1207	1406	1380
20:56:00	0.34	0.70	16.08	0.00	0.35	177.80	1737	1207	1381	1380
21:00:00	0.34	0.73	16.08	0.00	0.32	177.80	1737	1207	1381	1380
21:04:00	0.34	0.92	15.87	0.00	0.33	177.80	1739	1207	1381	1380
21:08:00	0.34	0.72	16.02	0.00	0.35	177.80	1712	1207	1381	1380
21:12:00	0.34	0.67	16.02	0.00	0.32	177.80	1712	1207	1353	1380
21:16:00	0.34	0.72	15.89	0.00	0.32	177.80	1712	1207	1355	1380
21:20:00	0.34	0.86	16.12	0.00	0.35	177.80	1736	1207	1396	1380
21:24:00	0.34	0.79	15.83	0.00	0.33	177.80	1736	1207	1396	1380
21:28:00	0.34	0.66	15.95	0.00	0.32	177.80	1736	1207	1362	1380
21:32:00	0.34	0.71	15.98	0.00	0.34	177.80	1736	1207	1396	1380
21:36:00	0.34	0.81	16.35	0.00	0.33	177.80	1736	1207	1396	1380
21:40:00	0.34	0.82	16.26	0.00	0.33	177.80	1736	1207	1392	1380
21:44:00	0.34	0.66	16.26	0.00	0.34	177.80	1736	1207	1359	1380
21:48:00	0.34	0.70	15.89	0.00	0.33	177.80	1736	1207	1353	1380
21:52:00	0.34	0.77	16.09	0.00	0.34	177.80	1736	1207	1390	1380
21:56:00	0.34	0.88	16.14	0.00	0.34	177.80	1736	1207	1396	1380
22:00:00	0.32	0.69	16.42	0.00	0.33	178.10	1731	1221	1391	1365

D102920.XLS

10/29/91 20:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
20:00:00	994	981	373	396	173.60	4.93	8.84	0	486	4
20:04:00	994	981	373	396	173.60	4.93	8.84	0	440	4
20:08:00	994	981	373	396	173.60	4.93	8.84	0	462	4
20:12:00	994	981	373	396	173.60	4.93	8.84	0	513	4
20:16:00	994	981	373	396	173.60	4.93	8.84	0	528	4
20:20:00	994	981	373	396	173.60	4.93	8.84	0	437	4
20:24:00	994	981	373	396	173.60	4.93	8.84	0	430	4
20:28:00	994	981	373	396	173.60	4.93	8.84	0	493	4
20:32:00	994	981	373	396	173.60	4.93	8.84	0	484	4
20:36:00	994	981	373	396	173.60	4.93	8.84	0	432	4
20:40:00	994	981	373	396	173.60	5.25	8.60	0	408	4
20:44:00	994	981	373	396	173.60	4.91	8.84	0	430	4
20:48:00	994	981	373	396	173.60	4.86	8.84	0	464	4
20:52:00	994	981	373	396	173.60	4.88	8.84	0	481	4
20:56:00	994	981	373	396	173.60	5.18	8.84	0	442	4
21:00:00	994	981	373	396	173.60	5.23	8.74	0	403	4
21:04:00	994	981	373	396	173.60	4.93	8.74	0	435	4
21:08:00	994	981	373	396	173.60	4.86	8.74	0	474	4
21:12:00	994	981	373	396	173.60	4.93	8.74	0	452	4
21:16:00	994	981	373	396	173.60	5.30	8.74	0	401	4
21:20:00	994	981	373	396	173.60	5.03	8.74	0	408	4
21:24:00	994	981	373	396	173.60	5.03	8.74	0	432	4
21:28:00	994	981	373	396	173.60	4.93	8.74	0	474	4
21:32:00	994	981	373	396	173.60	5.25	8.74	0	415	4
21:36:00	994	981	373	396	173.60	4.91	8.74	0	413	4
21:40:00	994	981	373	396	173.60	4.88	8.74	0	454	4
21:44:00	994	981	373	396	173.60	4.98	8.74	0	462	4
21:48:00	994	981	373	396	173.60	5.25	8.74	0	415	4
21:52:00	994	981	373	396	173.60	5.18	8.74	0	403	4
21:56:00	1007	981	373	396	173.60	4.91	8.74	0	437	4
22:00:00	1005	991	367	400	173.70	4.91	8.84	0	464	1

D102922.XLS

10/29/91 22:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
22:00:00	0.32	0.69	16.42	0.00	0.33	178.10	1731	1221	1391	1365
22:04:00	0.32	0.69	16.28	0.00	0.33	178.10	1731	1221	1386	1365
22:08:00	0.32	0.75	16.44	0.00	0.33	178.10	1731	1221	1386	1365
22:12:00	0.32	0.83	16.22	0.00	0.33	178.10	1731	1221	1386	1365
22:16:00	0.32	0.77	16.22	0.00	0.33	178.10	1731	1221	1393	1365
22:20:00	0.32	0.67	15.92	0.00	0.32	178.10	1731	1221	1352	1365
22:24:00	0.32	0.71	16.09	0.00	0.32	178.10	1731	1221	1370	1365
22:28:00	0.32	0.80	16.39	0.00	0.34	178.10	1731	1221	1396	1365
22:32:00	0.32	0.80	16.12	0.00	0.32	178.10	1731	1221	1396	1365
22:36:00	0.32	0.69	16.12	0.00	0.32	178.10	1731	1221	1363	1365
22:40:00	0.32	0.69	16.12	0.00	0.34	178.10	1731	1221	1393	1365
22:44:00	0.32	0.74	16.45	0.00	0.33	178.10	1731	1221	1395	1365
22:48:00	0.36	0.86	16.17	0.00	0.32	178.10	1733	1221	1367	1365
22:52:00	0.36	0.88	16.37	0.00	0.34	178.10	1733	1221	1392	1365
22:56:00	0.32	0.66	16.06	0.00	0.32	178.10	1735	1221	1351	1365
23:00:00	0.36	0.70	16.31	0.00	0.33	178.10	1735	1221	1388	1365
23:04:00	0.36	0.76	15.95	0.00	0.34	178.10	1764	1221	1388	1365
23:08:00	0.32	0.85	16.01	0.00	0.34	178.10	1764	1221	1393	1365
23:12:00	0.32	0.69	16.36	0.00	0.33	178.10	1764	1221	1393	1365
23:16:00	0.32	0.68	16.07	0.00	0.33	178.10	1764	1221	1361	1365
23:20:00	0.32	0.74	16.34	0.00	0.33	178.10	1764	1221	1396	1365
23:24:00	0.32	0.86	15.73	0.00	0.32	178.10	1764	1221	1396	1365
23:28:00	0.32	0.87	16.16	0.00	0.33	178.10	1764	1221	1383	1365
23:32:00	0.36	0.66	16.28	0.00	0.33	178.10	1764	1221	1394	1365
23:36:00	0.32	0.70	15.79	0.00	0.33	178.10	1764	1221	1326	1365
23:40:00	0.36	0.75	16.02	0.00	0.33	175.40	1764	1221	1385	1365
23:44:00	0.36	0.85	16.30	0.00	0.33	172.60	1789	1221	1402	1365
23:48:00	0.36	0.80	16.27	0.00	0.33	172.60	1762	1221	1362	1365
23:52:00	0.36	0.68	16.35	0.00	0.34	172.60	1762	1221	1399	1365
23:56:00	0.32	0.70	16.26	0.00	0.33	172.60	1762	1221	1398	1365
0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D102922.XLS

10/29/91 22:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
22:00:00	1005	991	367	400	173.70	4.91	8.84	0	464	1
22:04:00	1005	991	367	400	173.70	5.20	8.60	0	415	1
22:08:00	1005	991	367	400	173.70	5.32	8.60	0	386	1
22:12:00	1005	991	367	400	173.70	4.98	8.60	0	415	1
22:16:00	1005	991	367	400	173.70	4.98	8.60	0	437	1
22:20:00	1005	991	367	400	173.70	5.30	8.60	0	427	1
22:24:00	1005	991	367	400	173.70	5.30	8.60	0	376	1
22:28:00	1005	991	367	400	173.70	5.08	8.60	0	381	1
22:32:00	1005	991	367	400	173.70	5.03	8.60	0	423	1
22:36:00	1005	991	367	400	173.70	5.08	8.60	0	435	1
22:40:00	1005	991	367	400	173.70	5.35	8.60	0	398	1
22:44:00	1005	991	367	400	173.70	5.45	8.60	0	369	1
22:48:00	1005	991	367	400	173.70	5.35	8.60	0	393	1
22:52:00	1005	991	367	400	173.70	4.98	8.60	0	440	1
22:56:00	1005	991	367	400	173.70	5.30	8.60	0	440	1
23:00:00	1005	991	367	400	173.70	5.30	8.60	0	401	1
23:04:00	1005	991	367	400	173.70	5.28	8.55	0	386	1
23:08:00	1005	991	367	400	173.70	5.01	8.79	0	430	1
23:12:00	1005	991	367	400	173.70	4.93	8.79	0	462	1
23:16:00	1005	991	367	400	173.70	5.23	8.79	0	437	1
23:20:00	1005	991	367	400	173.70	5.32	8.79	0	396	1
23:24:00	1005	991	367	400	173.70	5.20	8.79	0	425	1
23:28:00	1005	991	367	400	173.70	4.88	8.79	0	459	1
23:32:00	1005	991	367	400	173.70	5.23	8.79	0	462	1
23:36:00	1005	991	367	400	173.70	5.25	8.79	0	418	1
23:40:00	1005	991	367	400	169.50	5.28	8.79	0	388	1
23:44:00	1005	991	367	400	169.50	5.01	8.79	0	427	1
23:48:00	1005	991	367	400	169.50	4.86	8.79	0	464	1
23:52:00	1005	991	367	400	166.70	4.93	8.79	0	452	1
23:56:00	1005	991	367	400	166.70	5.23	8.79	0	423	1
0:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

D103000.XLS

10/30/91 0:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
0:00:00	0.36	0.72	16.20	0.00	0.33	172.60	1797	1234	1397	1369
0:04:00	0.36	0.78	16.21	0.00	0.35	172.60	1797	1234	1397	1369
0:08:00	0.36	0.84	16.15	0.00	0.33	172.60	1797	1234	1397	1369
0:12:00	0.36	0.69	16.01	0.00	0.32	172.60	1797	1234	1397	1369
0:16:00	0.36	0.69	15.81	0.00	0.35	172.60	1797	1234	1363	1369
0:20:00	0.36	0.74	16.15	0.00	0.33	172.60	1797	1234	1398	1369
0:24:00	0.36	0.83	16.15	0.00	0.33	172.60	1797	1234	1398	1369
0:28:00	0.36	0.86	16.15	0.00	0.35	172.60	1797	1234	1406	1369
0:32:00	0.36	0.66	16.15	0.00	0.33	172.60	1797	1234	1375	1369
0:36:00	0.36	0.71	16.15	0.00	0.33	172.60	1797	1234	1402	1369
0:40:00	0.36	0.76	16.15	0.00	0.34	172.60	1797	1234	1407	1369
0:44:00	0.36	0.84	16.27	0.00	0.33	172.60	1797	1234	1407	1369
0:48:00	0.36	0.73	16.30	0.00	0.33	172.60	1797	1234	1408	1369
0:52:00	0.36	0.68	16.30	0.00	0.34	172.60	1797	1234	1408	1369
0:56:00	0.36	0.74	16.30	0.00	0.34	172.60	1797	1234	1402	1369
1:00:00	0.36	0.85	16.27	0.00	0.33	172.60	1797	1234	1407	1369
1:04:00	0.36	0.81	16.54	0.00	0.33	172.60	1797	1234	1410	1369
1:08:00	0.36	0.67	16.25	0.00	0.33	172.60	1797	1234	1410	1369
1:12:00	0.36	0.69	15.97	0.00	0.34	172.60	1797	1234	1410	1369
1:16:00	0.36	0.75	15.89	0.00	0.32	170.00	1797	1234	1410	1369
1:20:00	0.36	0.86	16.25	0.00	0.33	170.00	1797	1234	1410	1369
1:24:00	0.36	0.86	15.74	0.00	0.34	170.00	1797	1234	1369	1369
1:28:00	0.36	0.67	16.16	0.00	0.32	170.00	1815	1234	1381	1369
1:32:00	0.36	0.70	16.16	0.00	0.32	170.00	1815	1234	1407	1369
1:36:00	0.36	0.74	16.16	0.00	0.35	170.00	1815	1234	1378	1369
1:40:00	0.36	0.87	16.16	0.00	0.32	170.00	1815	1234	1414	1369
1:44:00	0.36	0.91	16.16	0.00	0.32	170.00	1815	1234	1408	1369
1:48:00	0.36	0.66	16.27	0.00	0.35	170.00	1815	1234	1408	1369
1:52:00	0.36	0.70	16.10	0.00	0.32	170.00	1815	1234	1408	1369
1:56:00	0.36	0.76	16.10	0.00	0.34	170.00	1845	1234	1408	1369
2:00:00	0.36	0.83	16.18	0.00	0.33	169.40	1840	1200	1409	1387

D103000.XLS

10/30/91 0:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
0:00:00	1016	1001	366	396	168.30	5.03	8.79	0	432	1
0:04:00	1016	1001	366	396	168.30	5.06	8.79	0	425	1
0:08:00	1016	1001	366	396	168.30	4.71	8.79	0	474	1
0:12:00	1016	1001	366	396	168.30	4.74	8.79	0	496	1
0:16:00	1016	1001	366	396	168.30	4.98	8.69	0	459	1
0:20:00	1016	1001	366	396	168.30	5.10	8.94	0	425	1
0:24:00	1016	1001	366	396	168.30	4.74	8.94	0	440	1
0:28:00	1016	1001	366	396	168.30	4.69	8.94	0	488	1
0:32:00	1016	1001	366	396	168.30	4.79	8.94	0	491	1
0:36:00	1016	1001	366	396	168.30	5.06	8.94	0	449	1
0:40:00	1016	1001	366	396	168.30	4.98	8.94	0	435	1
0:44:00	1016	1001	366	396	168.30	4.69	8.94	0	479	1
0:48:00	1016	1001	366	396	168.30	4.64	8.94	0	510	1
0:52:00	1016	1001	366	396	168.30	4.98	8.94	0	479	1
0:56:00	1016	1001	366	396	168.30	5.06	8.94	0	437	1
1:00:00	1016	1001	366	396	168.30	4.96	8.94	0	459	1
1:04:00	1016	1001	366	396	168.30	4.96	8.94	0	488	1
1:08:00	1016	1001	366	396	168.30	5.01	8.94	0	501	1
1:12:00	1016	1001	366	396	168.30	5.01	8.94	0	464	1
1:16:00	1016	1001	366	396	168.30	5.03	8.94	0	437	1
1:20:00	1016	1001	366	396	168.30	4.69	8.94	0	462	1
1:24:00	1016	1001	366	396	168.30	4.64	8.94	0	506	1
1:28:00	1016	1001	366	396	168.30	4.76	8.94	0	503	1
1:32:00	1016	1001	366	396	168.30	5.03	8.94	0	462	1
1:36:00	1016	1001	366	396	168.30	5.06	8.94	0	432	1
1:40:00	1016	1001	366	396	165.70	4.71	8.94	0	469	1
1:44:00	1016	1001	366	396	165.70	4.66	8.94	0	501	1
1:48:00	1016	1001	366	396	165.70	4.76	8.94	0	503	1
1:52:00	1016	1001	366	396	165.70	4.76	8.94	0	462	1
1:56:00	1016	1001	366	396	165.70	5.03	8.94	0	430	1
2:00:00	1012	1002	368	402	164.90	4.74	8.89	0	471	1

D103002.XLS

10/30/91 2:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
2:00:00	0.36	0.83	16.18	0.00	0.33	169.40	1840	1200	1409	1387
2:04:00	0.36	0.81	16.18	0.00	0.33	169.40	1840	1200	1409	1387
2:08:00	0.36	0.67	16.34	0.00	0.35	169.40	1840	1200	1409	1387
2:12:00	0.36	0.72	15.93	0.00	0.32	169.40	1840	1200	1409	1387
2:16:00	0.36	0.78	15.90	0.00	0.33	169.40	1840	1200	1409	1387
2:20:00	0.36	0.81	16.00	0.00	0.34	169.40	1811	1200	1409	1387
2:24:00	0.36	0.77	16.05	0.00	0.33	166.60	1811	1200	1384	1387
2:28:00	0.36	0.74	16.05	0.00	0.34	166.60	1811	1200	1398	1387
2:32:00	0.36	0.68	16.30	0.00	0.33	166.60	1854	1200	1424	1387
2:36:00	0.36	0.71	16.01	0.00	0.32	166.60	1854	1200	1424	1387
2:40:00	0.36	0.76	15.76	0.00	0.35	166.60	1854	1200	1398	1387
2:44:00	0.36	0.84	16.14	0.00	0.33	166.60	1854	1200	1398	1387
2:48:00	0.36	0.76	16.14	0.00	0.32	166.60	1854	1200	1395	1387
2:52:00	0.36	0.68	16.14	0.00	0.35	169.30	1854	1200	1425	1387
2:56:00	0.32	0.72	16.14	0.00	0.33	169.30	1854	1200	1425	1387
3:00:00	0.36	0.77	15.83	0.00	0.33	169.30	1854	1227	1425	1387
3:04:00	0.36	0.83	16.31	0.00	0.34	169.30	1854	1197	1397	1387
3:08:00	0.36	0.75	16.21	0.00	0.32	169.30	1854	1197	1417	1387
3:12:00	0.36	0.67	15.86	0.00	0.34	169.30	1854	1197	1384	1387
3:16:00	0.36	0.71	16.39	0.00	0.34	169.30	1854	1197	1413	1387
3:20:00	0.36	0.76	16.28	0.00	0.33	169.30	1854	1197	1413	1387
3:24:00	0.36	0.84	16.49	0.00	0.35	169.30	1854	1197	1413	1387
3:28:00	0.36	0.77	16.26	0.00	0.32	169.30	1854	1197	1413	1387
3:32:00	0.36	0.66	16.00	0.00	0.32	172.30	1854	1197	1413	1387
3:36:00	0.36	0.70	16.00	0.00	0.35	172.30	1854	1197	1413	1387
3:40:00	0.36	0.72	16.04	0.00	0.33	175.00	1854	1197	1413	1387
3:44:00	0.36	0.79	16.33	0.00	0.34	175.00	1854	1197	1413	1387
3:48:00	0.36	0.81	16.35	0.00	0.33	175.00	1854	1197	1413	1387
3:52:00	0.36	0.73	16.04	0.00	0.32	175.00	1854	1197	1413	1387
3:56:00	0.36	0.67	16.29	0.00	0.34	175.00	1854	1197	1413	1387
4:00:00	0.37	0.71	16.20	0.00	0.32	176.90	1873	1207	1412	1392

D103002.XLS

10/30/91 2:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
2:00:00	1012	1002	368	402	164.90	4.74	8.89	0	471	1
2:04:00	1012	1002	368	402	164.90	4.66	8.89	0	618	1
2:08:00	1012	1002	368	402	164.90	4.76	8.89	0	547	1
2:12:00	1012	1002	368	402	164.90	5.15	8.89	0	501	1
2:16:00	1012	1002	368	402	164.90	4.79	8.89	0	518	1
2:20:00	1012	1002	368	402	162.30	4.79	8.89	0	515	1
2:24:00	1012	1002	368	402	162.30	4.71	8.89	0	557	1
2:28:00	1012	1002	368	402	162.30	4.81	8.89	0	569	1
2:32:00	1012	1002	368	402	159.40	5.10	8.89	0	579	1
2:36:00	1012	1002	368	402	162.30	5.10	8.89	0	520	1
2:40:00	1012	1002	368	402	162.30	5.06	8.89	0	506	1
2:44:00	1012	1002	368	402	162.30	4.74	8.89	0	542	1
2:48:00	1012	1002	368	402	162.30	4.71	8.89	0	586	1
2:52:00	1012	1002	368	402	162.30	5.06	8.89	0	542	1
2:56:00	1012	1002	368	402	165.10	5.13	8.89	0	506	1
3:00:00	1012	1002	368	402	165.10	4.74	8.89	0	503	1
3:04:00	1012	1002	368	402	165.10	4.74	8.89	0	535	1
3:08:00	1012	1002	368	402	165.10	4.76	8.89	0	503	1
3:12:00	1012	1002	368	402	165.10	5.10	8.65	0	493	1
3:16:00	1012	1002	368	431	165.10	5.18	8.65	0	454	1
3:20:00	1012	1002	368	403	165.10	5.10	8.65	0	430	1
3:24:00	1012	1002	368	403	165.10	4.81	8.89	0	479	1
3:28:00	1012	1002	368	403	165.10	4.81	8.89	0	493	1
3:32:00	1012	1002	368	436	168.20	5.57	8.74	0	498	1
3:36:00	1012	1002	368	474	168.20	4.91	8.74	0	469	1
3:40:00	1012	1002	368	500	170.80	4.91	8.74	0	462	1
3:44:00	1012	1002	368	500	170.80	4.91	8.74	0	532	1
3:48:00	1012	1002	368	475	170.80	4.91	8.74	0	476	1
3:52:00	1012	1002	368	475	170.80	4.91	8.74	0	528	1
3:56:00	1012	1002	368	475	170.80	4.91	8.74	0	491	1
4:00:00	1013	1006	366	482	172.60	5.28	8.65	0	435	1

D103004.XLS

10/30/91 4:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
4:00:00	0.37	0.71	16.20	0.00	0.32	176.90	1873	1207	1412	1392
4:04:00	0.37	0.77	16.19	0.00	0.33	176.90	1877	1207	1412	1392
4:08:00	0.37	0.80	16.29	0.00	0.33	176.90	1877	1207	1412	1392
4:12:00	0.37	0.71	15.86	0.00	0.33	176.90	1847	1207	1412	1392
4:16:00	0.36	0.68	16.37	0.00	0.34	176.90	1878	1207	1412	1392
4:20:00	0.41	0.70	16.36	0.00	0.32	176.90	1830	1247	1412	1392
4:24:00	0.37	0.76	16.28	0.00	0.33	174.20	1830	1247	1412	1392
4:28:00	0.41	0.84	16.28	0.00	0.34	174.20	1830	1247	1410	1392
4:32:00	0.36	0.75	16.04	0.00	0.33	174.20	1830	1247	1410	1392
4:36:00	0.36	0.68	16.04	0.00	0.33	174.20	1830	1247	1410	1392
4:40:00	0.36	0.72	16.04	0.00	0.32	174.20	1830	1247	1410	1392
4:44:00	0.36	0.80	16.69	0.00	0.32	169.10	1830	1247	1159	1392
4:48:00	0.36	0.82	15.92	0.00	0.35	163.80	1858	1247	1419	1392
4:52:00	0.36	0.76	15.89	0.00	0.32	167.80	1858	1221	1419	1392
4:56:00	0.36	0.67	15.89	0.00	0.34	170.70	1858	1221	1419	1392
5:00:00	0.36	0.69	16.26	0.00	0.32	173.50	1858	1221	1419	1392
5:04:00	0.36	0.76	16.28	0.00	0.33	173.50	1858	1221	1419	1392
5:08:00	0.36	0.82	16.28	0.00	0.33	173.50	1858	1221	1418	1392
5:12:00	0.36	0.73	16.26	0.00	0.32	173.50	1860	1221	1418	1392
5:16:00	0.36	0.68	15.82	0.00	0.35	173.50	1887	1221	1386	1392
5:20:00	0.36	0.73	15.74	0.00	0.32	173.50	1887	1221	1392	1392
5:24:00	0.36	0.85	15.86	0.00	0.34	173.50	1892	1221	1421	1392
5:28:00	0.36	0.78	16.15	0.00	0.32	173.50	1892	1221	1421	1392
5:32:00	0.36	0.66	15.88	0.00	0.33	173.50	1888	1221	1421	1392
5:36:00	0.43	0.69	16.00	0.00	0.33	173.50	1888	1221	1421	1392
5:40:00	0.43	0.75	16.02	0.00	0.32	173.50	1888	1221	1425	1392
5:44:00	0.38	0.84	16.16	0.00	0.34	173.50	1888	1221	1425	1392
5:48:00	0.38	0.76	16.36	0.00	0.33	173.50	1862	1221	1425	1392
5:52:00	0.33	0.68	16.25	0.00	0.35	173.50	1892	1221	1424	1392
5:56:00	0.39	0.72	16.46	0.00	0.33	173.50	1892	1221	1424	1392
6:00:00	0.38	0.84	16.35	0.00	0.33	172.60	1887	1231	1425	1393

D103004.XLS

10/30/91 4:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
4:00:00	1013	1006	366	482	172.60	5.28	8.65	0	435	1
4:04:00	1013	1006	366	482	172.60	4.88	8.65	0	418	1
4:08:00	1013	1006	366	482	172.60	4.88	8.65	0	506	1
4:12:00	1013	1006	366	482	172.60	4.84	8.89	0	515	1
4:16:00	1013	1006	366	482	172.60	5.10	8.65	0	476	1
4:20:00	1013	1006	366	482	172.60	5.15	8.65	0	459	1
4:24:00	1013	1006	366	454	169.90	4.88	8.65	0	437	1
4:28:00	1027	1006	366	454	169.90	4.88	8.89	0	479	1
4:32:00	1027	1020	366	454	169.90	4.76	8.89	0	513	1
4:36:00	1027	1020	366	454	169.90	5.06	8.89	0	491	1
4:40:00	1027	1020	366	454	169.90	5.13	8.89	0	440	1
4:44:00	1027	1020	366	454	164.70	5.06	8.89	0	589	1
4:48:00	1027	1020	366	429	159.50	5.40	8.60	0	391	1
4:52:00	1027	1020	366	429	163.50	4.74	8.94	0	474	1
4:56:00	1027	1020	366	429	166.60	4.76	8.99	0	479	1
5:00:00	1027	1020	366	429	169.20	5.06	8.99	0	437	1
5:04:00	1027	1020	366	429	169.20	4.96	8.69	0	423	1
5:08:00	1027	1020	366	429	169.20	4.96	8.94	0	454	1
5:12:00	1027	1020	366	429	169.20	4.76	8.94	0	486	1
5:16:00	1027	1020	366	429	169.20	5.03	8.69	0	437	1
5:20:00	1041	1020	366	429	169.20	4.93	8.99	0	437	1
5:24:00	1041	1020	366	398	169.20	4.62	8.99	0	447	1
5:28:00	1041	1020	366	398	169.20	4.64	8.99	0	486	1
5:32:00	1041	1020	366	398	169.20	5.03	8.94	0	484	1
5:36:00	1041	1020	366	398	169.20	5.10	8.94	0	430	1
5:40:00	1055	1020	366	398	169.20	5.03	8.69	0	415	1
5:44:00	1055	1020	366	398	169.20	4.71	8.94	0	454	1
5:48:00	1055	1020	366	398	169.20	4.76	8.94	0	479	1
5:52:00	1055	1020	366	398	169.20	5.10	8.94	0	447	1
5:56:00	1055	1020	366	398	169.20	5.18	8.69	0	405	1
6:00:00	1051	1011	371	393	168.20	4.96	8.74	0	420	0

D103006.XLS

10/30/91 6:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
6:00:00	0.38	0.84	16.35	0.00	0.33	172.60	1887	1231	1425	1393
6:04:00	0.38	0.81	16.42	0.00	0.32	172.60	1887	1231	1425	1393
6:08:00	0.38	0.67	16.46	0.00	0.33	172.60	1891	1231	1430	1393
6:12:00	0.42	0.71	16.39	0.00	0.34	172.60	1891	1231	1430	1393
6:16:00	0.42	0.81	16.07	0.00	0.34	172.60	1893	1231	1430	1393
6:20:00	0.38	0.82	16.07	0.00	0.35	172.60	1868	1231	1425	1393
6:24:00	0.38	0.67	16.07	0.00	0.33	172.60	1868	1231	1400	1393
6:28:00	0.34	0.72	16.07	0.00	0.34	172.60	1868	1231	1428	1393
6:32:00	0.34	0.80	15.96	0.00	0.33	172.60	1868	1231	1401	1393
6:36:00	0.38	0.85	15.84	0.00	0.32	172.60	1868	1231	1401	1393
6:40:00	0.38	0.66	15.91	0.00	0.33	172.60	1868	1231	1429	1393
6:44:00	0.38	0.70	15.93	0.00	0.32	172.60	1868	1203	1429	1393
6:48:00	0.38	0.74	15.90	0.00	0.33	172.60	1868	1235	1429	1393
6:52:00	0.38	0.85	16.28	0.00	0.32	172.60	1868	1235	1401	1393
6:56:00	0.38	0.74	16.01	0.00	0.34	172.60	1868	1208	1401	1393
7:00:00	0.44	0.68	16.38	0.00	0.33	172.60	1868	1237	1428	1393
7:04:00	0.39	0.72	16.34	0.00	0.33	172.60	1868	1237	1428	1393
7:08:00	0.39	0.88	16.71	0.00	0.33	169.30	1868	1237	1428	1393
7:12:00	0.34	0.75	16.30	0.00	0.34	169.30	1868	1210	1428	1393
7:16:00	0.39	0.68	15.98	0.00	0.33	169.30	1896	1210	1428	1393
7:20:00	0.34	0.73	15.98	0.00	0.34	169.30	1896	1210	1428	1393
7:24:00	0.34	0.86	15.98	0.00	0.32	169.30	1861	1210	1428	1393
7:28:00	0.34	0.77	16.17	0.00	0.35	169.30	1861	1210	1428	1393
7:32:00	0.40	0.67	16.17	0.00	0.33	169.30	1861	1210	1428	1393
7:36:00	0.40	0.72	16.17	0.00	0.34	169.30	1891	1210	1428	1393
7:40:00	0.40	0.84	16.15	0.00	0.32	169.30	1894	1210	1428	1393
7:44:00	0.40	0.71	15.39	0.00	0.34	166.50	1867	1210	1388	1393
7:48:00	0.47	0.66	14.47	0.00	0.32	160.60	1896	1210	1304	1393
7:52:00	0.42	0.68	14.19	0.00	0.34	152.80	1866	1210	1265	1393
7:56:00	0.42	0.68	14.21	0.00	0.32	147.00	1740	1181	1385	1393
8:00:00	0.40	0.73	14.25	0.00	0.34	146.30	1761	1178	1409	1379

10/30/91 6:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
6:00:00	1051	1011	371	393	168.20	4.96	8.74	0	420	0
6:04:00	1051	1011	371	393	168.20	4.96	8.74	0	466	0
6:08:00	1051	1011	371	393	168.20	4.96	8.74	0	459	0
6:12:00	1051	1011	371	393	168.20	5.23	8.74	0	405	0
6:16:00	1051	1011	371	393	168.20	4.84	8.74	0	410	0
6:20:00	1051	1011	371	393	168.20	4.76	8.74	0	459	0
6:24:00	1051	1011	371	393	168.20	5.06	8.74	0	457	0
6:28:00	1051	1011	371	393	168.20	5.18	8.74	0	408	0
6:32:00	1051	1011	371	393	168.20	4.84	8.74	0	415	0
6:36:00	1038	1011	371	393	168.20	4.79	8.74	0	454	0
6:40:00	1038	1011	371	393	168.20	4.86	8.74	0	464	0
6:44:00	1038	1011	371	393	168.20	5.23	8.74	0	405	0
6:48:00	1038	1011	371	393	168.20	5.18	8.74	0	391	0
6:52:00	1038	1011	371	393	168.20	4.88	8.74	0	430	0
6:56:00	1038	1011	371	393	168.20	4.76	8.74	0	462	0
7:00:00	1038	1011	371	393	168.20	4.81	8.74	0	440	0
7:04:00	1038	1011	371	393	168.20	5.18	8.74	0	393	0
7:08:00	1024	1011	371	393	165.50	4.49	8.94	0	462	0
7:12:00	1024	1011	371	393	165.50	4.45	8.94	0	513	0
7:16:00	1024	1011	371	393	165.50	4.66	8.94	0	466	0
7:20:00	1024	1011	371	393	165.50	5.13	8.94	0	405	0
7:24:00	1024	1011	371	393	165.50	4.98	8.94	0	435	0
7:28:00	1024	1011	371	425	165.50	4.64	8.94	0	474	0
7:32:00	1024	1011	371	453	165.50	4.96	8.94	0	479	0
7:36:00	1024	1011	371	453	165.50	5.06	8.94	0	425	0
7:40:00	1024	1011	371	453	165.50	4.93	8.94	0	449	0
7:44:00	1024	1011	371	453	162.00	0.25	9.72	0	625	0
7:48:00	1024	1011	371	372	156.20	3.37	10.06	0	650	0
7:52:00	1038	1011	371	372	148.50	3.47	9.72	0	650	0
7:56:00	1025	995	371	372	142.80	7.59	7.86	0	332	0
8:00:00	1026	989	370	391	141.80	4.03	9.43	0	532	3

D103008.XLS

10/30/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.40	0.73	14.25	0.00	0.34	146.30	1761	1178	1409	1379
8:04:00	0.40	0.64	14.51	0.00	0.32	146.30	1787	1178	1409	1379
8:08:00	0.40	0.69	14.90	0.00	0.34	149.00	1787	1178	1409	1379
8:12:00	0.40	0.73	14.61	0.00	0.32	149.00	1787	1178	1409	1379
8:16:00	0.40	0.63	14.34	0.00	0.35	152.00	1754	1208	1409	1379
8:20:00	0.40	0.67	14.62	0.00	0.33	154.80	1754	1208	1409	1379
8:24:00	0.40	0.75	15.17	0.00	0.36	158.60	1754	1208	1409	1379
8:28:00	0.40	0.62	14.28	0.00	0.33	161.30	1754	1208	1367	1379
8:32:00	0.40	0.67	15.15	0.00	0.34	165.30	1754	1208	1417	1379
8:36:00	0.44	0.74	15.46	0.00	0.33	168.20	1754	1208	1417	1379
8:40:00	0.49	0.73	15.14	0.00	0.34	171.30	1754	1234	1417	1379
8:44:00	0.41	0.64	15.14	0.00	0.32	171.30	1754	1234	1417	1379
8:48:00	0.41	0.00	15.14	0.00	0.33	171.30	1348	1159	1372	1351
8:52:00	0.41	0.00	8.56	0.00	0.33	102.40	1244	975	952	1274
8:56:00	0.41	0.00	0.15	0.00	0.33	29.20	1097	752	952	1239
9:00:00	0.40	0.00	0.15	0.00	0.32	20.10	1057	671	1062	1239
9:04:00	0.40	0.00	0.15	0.00	0.32	17.40	1110	707	1125	1239
9:08:00	0.40	0.00	0.15	0.00	0.34	17.40	1227	777	1187	1239
9:12:00	0.40	0.00	0.15	0.00	0.33	17.40	1280	820	1187	1209
9:16:00	0.40	0.23	4.57	0.00	0.35	17.40	1317	978	1260	1209
9:20:00	0.45	0.64	14.49	0.00	0.34	29.50	1398	1059	1260	1209
9:24:00	0.40	0.73	16.21	0.00	0.34	43.40	1535	1091	1286	1241
9:28:00	0.47	0.70	16.44	0.00	0.34	51.90	1600	1091	1311	1270
9:32:00	0.38	0.67	16.47	0.00	0.34	64.90	1663	1119	1360	1324
9:36:00	0.44	0.67	15.75	0.00	0.33	71.10	1663	1119	1360	1324
9:40:00	0.44	0.73	15.74	0.00	0.35	82.20	1700	1119	1387	1351
9:44:00	0.44	0.83	15.44	0.00	0.33	104.50	1700	1119	1414	1351
9:48:00	0.44	0.78	15.44	0.00	0.34	115.00	1700	1119	1414	1351
9:52:00	0.44	0.72	15.44	0.00	0.34	123.50	1725	1119	1414	1351
9:56:00	0.44	0.66	15.40	0.00	0.34	126.30	1725	1119	1414	1379
10:00:00	0.44	0.69	15.23	0.00	0.33	129.80	1717	1122	1414	1378

D103008.XLS

10/30/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	1026	989	370	391	141.80	4.03	9.43	0	532	3
8:04:00	1026	989	370	391	141.80	4.52	9.09	0	513	3
8:08:00	1026	989	370	391	144.60	4.52	9.09	0	462	3
8:12:00	1026	989	370	391	144.60	4.52	9.28	0	513	3
8:16:00	1026	989	370	391	148.10	4.18	9.28	0	549	3
8:20:00	1026	989	370	391	151.00	4.25	9.33	0	506	3
8:24:00	1041	989	370	391	154.40	4.54	9.09	0	440	3
8:28:00	1041	989	370	391	157.20	4.08	9.52	0	537	3
8:32:00	1041	989	370	391	161.30	4.52	9.18	0	476	3
8:36:00	1041	989	370	391	166.70	4.57	9.18	0	430	3
8:40:00	1041	1004	370	391	166.70	4.42	9.18	0	484	3
8:44:00	1041	1004	370	391	169.60	4.74	9.23	0	515	3
8:48:00	1041	1004	370	391	166.70	10.87	4.50	0	227	3
8:52:00	985	954	370	391	95.20	13.21	3.27	0	95	3
8:56:00	908	864	370	391	15.90	13.01	4.54	32	112	3
9:00:00	874	822	370	365	15.90	14.06	12.75	322	1000	3
9:04:00	855	788	370	365	15.90	5.84	20.00	1000	1000	3
9:08:00	855	788	370	365	15.90	17.41	6.50	37	640	3
9:12:00	855	788	370	365	15.90	17.80	3.91	7	415	3
9:16:00	825	774	370	365	15.90	10.57	8.40	49	86	3
9:20:00	803	761	370	365	15.90	6.40	8.11	5	90	3
9:24:00	829	791	370	365	32.30	4.18	8.99	5	132	3
9:28:00	843	791	370	365	41.30	3.88	9.52	5	183	3
9:32:00	843	805	370	365	58.20	4.08	9.38	5	200	3
9:36:00	857	819	370	365	63.90	5.13	9.04	5	208	3
9:40:00	889	833	370	365	78.10	4.49	9.28	5	247	3
9:44:00	903	850	370	365	100.10	4.52	8.94	5	264	3
9:48:00	918	865	370	365	110.30	4.96	8.94	5	288	3
9:52:00	931	865	370	365	119.10	5.32	8.69	5	305	3
9:56:00	931	879	370	365	122.00	3.61	9.77	5	462	3
10:00:00	934	893	365	374	125.40	4.10	9.43	0	471	1

D103010.XLS

10/30/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.44	0.69	15.23	0.00	0.33	129.80	1717	1122	1414	1378
10:04:00	0.44	0.73	15.23	0.00	0.34	136.70	1717	1122	1414	1378
10:08:00	0.44	0.87	15.49	0.00	0.33	144.20	1717	1122	1414	1378
10:12:00	0.44	0.78	15.49	0.00	0.34	155.20	1717	1122	1414	1378
10:16:00	0.44	0.65	15.49	0.00	0.33	158.40	1717	1122	1414	1378
10:20:00	0.44	0.66	15.71	0.00	0.35	166.30	1717	1148	1414	1378
10:24:00	0.44	0.69	16.06	0.00	0.33	169.00	1717	1148	1414	1378
10:28:00	0.39	0.73	16.06	0.00	0.35	175.40	1717	1148	1414	1378
10:32:00	0.44	0.74	16.32	0.00	0.33	175.40	1717	1148	1414	1378
10:36:00	0.45	0.77	16.03	0.00	0.33	178.20	1690	1148	1414	1378
10:40:00	0.45	0.84	16.37	0.00	0.33	178.20	1660	1148	1386	1378
10:44:00	0.45	0.92	16.73	0.00	0.33	178.20	1660	1148	1386	1378
10:48:00	0.45	0.84	16.35	0.00	0.33	175.40	1660	1148	1386	1378
10:52:00	0.45	0.76	16.23	0.00	0.33	175.40	1660	1148	1386	1378
10:56:00	0.45	0.69	16.26	0.00	0.33	175.40	1660	1148	1386	1378
11:00:00	0.45	0.70	16.24	0.00	0.32	175.40	1660	1148	1348	1378
11:04:00	0.45	0.73	16.24	0.00	0.34	175.40	1660	1148	1376	1378
11:08:00	0.45	0.76	16.24	0.00	0.33	175.40	1694	1148	1376	1378
11:12:00	0.41	0.84	16.24	0.00	0.35	175.40	1694	1148	1376	1378
11:16:00	0.41	0.93	16.19	0.00	0.33	175.40	1694	1148	1376	1378
11:20:00	0.41	0.92	16.19	0.00	0.33	175.40	1694	1148	1376	1378
11:24:00	0.41	0.86	16.69	0.00	0.33	175.40	1694	1176	1376	1378
11:28:00	0.41	0.83	16.44	0.00	0.33	178.10	1694	1176	1376	1378
11:32:00	0.46	0.71	16.18	0.00	0.35	178.10	1694	1176	1376	1378
11:36:00	0.46	0.68	16.24	0.00	0.32	178.10	1694	1176	1376	1378
11:40:00	0.46	0.69	16.24	0.00	0.33	178.10	1694	1176	1376	1378
11:44:00	0.46	0.71	16.13	0.00	0.33	178.10	1694	1176	1376	1378
11:48:00	0.46	0.74	16.40	0.00	0.33	178.10	1720	1176	1376	1378
11:52:00	0.46	0.77	16.14	0.00	0.34	178.10	1695	1176	1376	1378
11:56:00	0.46	0.93	16.49	0.00	0.33	178.10	1695	1176	1376	1378
12:00:00	0.38	0.89	16.37	0.00	0.35	177.00	1714	1186	1385	1367

D103010.XLS

10/30/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	934	893	365	374	125.40	4.10	9.43	0	471	1
10:04:00	950	893	365	374	132.60	4.35	9.13	0	447	1
10:08:00	965	906	365	374	140.00	4.35	9.18	0	466	1
10:12:00	965	919	365	374	151.30	4.15	9.18	0	530	1
10:16:00	978	919	365	374	154.40	4.13	9.18	0	562	1
10:20:00	965	933	365	374	162.00	4.42	9.18	0	523	1
10:24:00	965	933	365	374	167.30	4.71	8.89	0	493	1
10:28:00	965	947	365	374	170.40	4.71	8.89	0	466	1
10:32:00	989	947	365	374	173.30	4.71	8.84	0	462	1
10:36:00	1005	947	365	374	173.30	4.71	9.09	0	481	1
10:40:00	1005	947	365	374	173.30	4.98	8.84	0	459	1
10:44:00	1005	947	365	374	173.30	4.98	8.84	0	454	1
10:48:00	991	960	365	374	173.30	4.98	8.84	0	488	1
10:52:00	991	960	365	374	173.30	4.45	9.18	0	586	1
10:56:00	1004	960	365	374	173.30	4.49	9.23	0	596	1
11:00:00	1017	960	333	401	169.80	4.49	8.99	0	593	1
11:04:00	1017	960	303	436	169.80	4.84	8.99	0	545	1
11:08:00	1017	960	303	465	169.80	4.76	8.99	0	537	1
11:12:00	1017	960	328	465	169.80	4.74	8.89	0	528	1
11:16:00	1017	974	328	397	169.80	4.74	8.99	0	571	1
11:20:00	1017	974	328	397	172.40	4.49	8.99	0	589	1
11:24:00	1017	974	328	423	172.40	4.49	8.99	0	593	1
11:28:00	1017	974	328	423	172.40	4.59	8.99	0	591	1
11:32:00	1017	974	328	393	172.40	4.64	8.99	0	584	1
11:36:00	1032	974	328	393	172.40	4.91	9.04	0	567	1
11:40:00	1032	974	328	393	172.40	4.91	8.79	0	549	1
11:44:00	1018	987	328	367	172.40	4.91	8.79	0	554	1
11:48:00	1018	987	328	367	172.40	4.91	8.79	0	493	1
11:52:00	1036	987	328	367	175.10	4.91	8.74	0	481	1
11:56:00	1036	987	328	367	175.10	4.91	8.74	0	486	1
12:00:00	1034	990	338	384	172.60	4.93	8.79	0	493	4

D103012.XLS

10/30/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.38	0.89	16.37	0.00	0.35	177.00	1714	1186	1385	1367
12:04:00	0.38	0.88	16.91	0.00	0.33	177.00	1714	1186	1385	1367
12:08:00	0.42	0.91	16.17	0.00	0.33	177.00	1714	1186	1385	1367
12:12:00	0.37	0.89	16.11	0.00	0.33	177.00	1714	1186	1385	1367
12:16:00	0.38	0.87	16.45	0.00	0.33	177.00	1714	1186	1385	1367
12:20:00	0.43	0.86	16.10	0.00	0.35	177.00	1714	1186	1385	1367
12:24:00	0.43	0.87	16.79	0.00	0.33	177.00	1740	1186	1385	1367
12:28:00	0.43	0.84	16.20	0.00	0.32	177.00	1740	1186	1385	1367
12:32:00	0.43	0.80	16.19	0.00	0.33	177.00	1740	1186	1385	1367
12:36:00	0.47	0.77	16.19	0.00	0.33	179.70	1740	1186	1385	1367
12:40:00	0.42	0.68	16.85	0.00	0.34	179.70	1740	1186	1385	1367
12:44:00	0.42	0.68	16.09	0.00	0.32	179.70	1740	1186	1385	1367
12:48:00	0.46	0.70	16.41	0.00	0.33	179.70	1740	1186	1385	1367
12:52:00	0.40	0.72	16.26	0.00	0.35	179.70	1740	1186	1387	1367
12:56:00	0.40	0.75	16.26	0.00	0.32	179.70	1740	1186	1387	1367
13:00:00	0.36	0.77	16.26	0.00	0.34	179.70	1740	1186	1387	1367
13:04:00	0.36	0.86	16.61	0.00	0.34	179.70	1740	1186	1387	1367
13:08:00	0.40	0.92	16.33	0.00	0.34	179.70	1740	1186	1387	1367
13:12:00	0.40	0.89	16.33	0.00	0.35	179.70	1740	1186	1387	1367
13:16:00	0.40	0.91	16.33	0.00	0.32	179.70	1740	1186	1387	1367
13:20:00	0.40	0.88	16.33	0.00	0.33	179.70	1740	1186	1387	1367
13:24:00	0.40	0.89	16.33	0.00	0.34	176.90	1770	1186	1387	1367
13:28:00	0.40	0.87	16.33	0.00	0.33	176.90	1770	1211	1387	1367
13:32:00	0.40	0.70	16.33	0.00	0.34	174.10	1770	1211	1387	1367
13:36:00	0.40	0.69	16.33	0.00	0.33	174.10	1770	1211	1391	1367
13:40:00	0.35	0.71	16.33	0.00	0.32	174.10	1770	1211	1391	1367
13:44:00	0.35	0.75	16.33	0.00	0.33	174.10	1770	1211	1391	1367
13:48:00	0.39	0.77	16.66	0.00	0.33	174.10	1770	1211	1391	1367
13:52:00	0.39	0.84	16.24	0.00	0.35	174.10	1770	1211	1417	1367
13:56:00	0.39	0.95	16.24	0.00	0.33	174.10	1770	1211	1417	1367
14:00:00	0.42	0.92	16.28	0.00	0.33	172.20	1775	1210	1414	1385

D103012.XLS

10/30/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	1034	990	338	384	172.60	4.93	8.79	0	493	4
12:04:00	1034	990	338	384	172.60	4.84	8.79	0	518	4
12:08:00	1034	990	338	384	172.60	4.81	8.79	0	528	4
12:12:00	1034	990	338	384	172.60	4.81	8.79	0	535	4
12:16:00	1034	990	338	384	172.60	4.84	8.79	0	525	4
12:20:00	1034	990	338	384	172.60	4.79	8.79	0	547	4
12:24:00	1047	990	338	384	172.60	4.84	8.79	0	537	4
12:28:00	1047	990	338	384	172.60	4.79	8.79	0	549	4
12:32:00	1047	990	338	384	172.60	4.84	8.79	0	542	4
12:36:00	1047	1003	338	411	172.60	5.20	8.79	0	528	4
12:40:00	1047	1003	338	411	175.20	5.20	8.79	0	530	4
12:44:00	1047	1003	338	384	175.20	5.20	8.79	0	530	4
12:48:00	1047	1003	338	384	175.20	5.20	8.79	0	496	4
12:52:00	1032	1003	338	357	175.20	5.20	8.79	0	471	4
12:56:00	1032	1003	338	357	175.20	5.20	8.79	0	447	4
13:00:00	1051	1003	338	357	175.20	5.20	8.79	0	430	4
13:04:00	1051	1003	338	357	175.20	5.20	8.79	0	437	4
13:08:00	1051	1003	338	357	175.20	5.20	8.79	0	459	4
13:12:00	1037	1003	338	357	175.20	5.20	8.79	0	486	4
13:16:00	1037	1003	338	357	175.20	5.20	8.79	0	471	4
13:20:00	1052	1003	338	357	175.20	5.20	8.79	0	484	4
13:24:00	1052	1003	338	357	172.00	5.18	8.55	0	479	4
13:28:00	1039	1003	338	357	172.00	5.25	8.55	0	462	4
13:32:00	1039	1003	338	357	169.30	5.54	8.55	0	457	4
13:36:00	1053	1003	338	357	169.30	5.54	8.55	0	457	4
13:40:00	1038	1003	338	357	169.30	5.54	8.55	0	442	4
13:44:00	1038	1016	338	383	169.30	5.57	8.55	0	413	4
13:48:00	1051	1016	338	383	169.30	5.57	8.55	0	393	4
13:52:00	1051	1016	338	383	169.30	5.20	8.50	0	401	4
13:56:00	1051	1016	338	383	169.30	5.20	8.74	0	410	4
14:00:00	1064	1019	348	395	167.40	5.15	8.69	0	452	3

D103014.XLS

10/30/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.42	0.92	16.28	0.00	0.33	172.20	1775	1210	1414	1385
14:04:00	0.37	0.88	16.28	0.00	0.33	172.20	1775	1210	1414	1385
14:08:00	0.42	0.88	16.29	0.00	0.33	172.20	1775	1210	1414	1385
14:12:00	0.42	0.72	16.29	0.00	0.34	172.20	1775	1210	1414	1385
14:16:00	0.42	0.69	16.29	0.00	0.32	172.20	1775	1210	1414	1385
14:20:00	0.42	0.71	16.29	0.00	0.32	172.20	1775	1210	1414	1385
14:24:00	0.42	0.73	16.34	0.00	0.34	172.20	1775	1210	1414	1385
14:28:00	0.37	0.74	16.34	0.00	0.33	172.20	1775	1210	1414	1385
14:32:00	0.37	0.76	16.34	0.00	0.33	172.20	1775	1210	1414	1385
14:36:00	0.42	0.77	16.27	0.00	0.33	172.20	1772	1210	1414	1385
14:40:00	0.42	0.81	16.27	0.00	0.33	172.20	1772	1210	1414	1385
14:44:00	0.42	0.90	16.23	0.00	0.34	172.20	1772	1210	1414	1385
14:48:00	0.42	0.95	16.23	0.00	0.33	172.20	1772	1210	1414	1385
14:52:00	0.42	0.91	16.18	0.00	0.33	172.20	1772	1210	1414	1385
14:56:00	0.42	0.89	16.46	0.00	0.35	172.20	1772	1210	1414	1385
15:00:00	0.42	0.87	16.46	0.00	0.33	172.20	1772	1210	1414	1385
15:04:00	0.42	0.84	16.21	0.00	0.32	172.20	1772	1210	1414	1385
15:08:00	0.42	0.83	15.42	0.00	0.34	168.70	1772	1210	1393	1385
15:12:00	0.42	0.80	15.42	0.00	0.33	164.90	1772	1210	1395	1385
15:16:00	0.42	0.67	14.87	0.00	0.33	161.20	1772	1210	1431	1385
15:20:00	0.46	0.68	14.87	0.00	0.32	169.00	1772	1210	1431	1385
15:24:00	0.41	0.70	14.55	0.00	0.32	172.20	1772	1210	1431	1385
15:28:00	0.41	0.19	14.55	0.00	0.35	172.20	1642	1210	1257	1385
15:32:00	0.41	0.91	14.81	0.00	0.33	172.20	1704	1210	1389	1385
15:36:00	0.41	0.89	14.81	0.00	0.33	169.40	1742	1210	1358	1385
15:40:00	0.41	0.72	14.81	0.00	0.32	169.40	1702	1210	1415	1385
15:44:00	0.41	0.00	14.81	0.00	0.33	164.90	1588	1210	1201	1385
15:48:00	0.45	0.36	14.81	0.00	0.34	164.90	1522	1174	1391	1355
15:52:00	0.45	0.00	13.59	0.00	0.33	155.50	1291	1139	1114	1323
15:56:00	0.45	0.00	14.84	0.00	0.34	107.70	1093	916	907	1219
16:00:00	0.47	0.00	0.01	0.00	0.32	48.80	1051	841	914	1220

D103014.XLS

10/30/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	1064	1019	348	395	167.40	5.15	8.69	0	452	3
14:04:00	1064	1019	348	365	167.40	5.08	8.69	0	471	3
14:08:00	1064	1019	348	365	167.40	5.13	8.69	0	479	3
14:12:00	1064	1019	348	365	167.40	5.13	8.69	0	493	3
14:16:00	1064	1019	348	365	167.40	5.42	8.69	0	491	3
14:20:00	1064	1019	348	365	167.40	5.42	8.69	0	464	3
14:24:00	1049	1019	375	365	167.40	5.42	8.69	0	442	3
14:28:00	1049	1019	375	394	167.40	5.52	8.69	0	425	3
14:32:00	1049	1019	375	394	167.40	5.52	8.69	0	420	3
14:36:00	1063	1019	375	394	167.40	5.54	8.69	0	408	3
14:40:00	1063	1019	375	394	167.40	5.49	8.69	0	403	3
14:44:00	1063	1019	375	394	167.40	5.45	8.69	0	415	3
14:48:00	1063	1019	375	394	167.40	5.45	8.69	0	415	3
14:52:00	1063	1019	375	394	167.40	5.45	8.69	0	418	3
14:56:00	1063	1019	375	394	167.40	5.45	8.69	0	449	3
15:00:00	1063	1019	375	394	167.40	5.45	8.69	0	447	3
15:04:00	1063	1019	375	394	167.40	5.15	8.69	0	464	3
15:08:00	1063	1019	375	394	164.80	4.71	8.94	0	564	3
15:12:00	1063	1019	375	394	157.60	4.45	8.94	0	640	3
15:16:00	1048	1019	375	394	157.60	4.30	9.43	0	703	3
15:20:00	1048	1019	375	394	165.20	3.93	9.52	0	745	3
15:24:00	1048	1019	375	394	168.60	4.15	9.52	0	737	3
15:28:00	1048	1019	375	394	168.60	4.13	9.52	0	735	3
15:32:00	1048	1019	375	394	168.60	4.57	9.18	0	708	3
15:36:00	1063	1019	375	394	166.00	3.30	9.77	0	828	3
15:40:00	1063	1019	375	394	163.00	4.03	8.65	0	686	3
15:44:00	1063	1019	375	394	163.00	3.83	9.62	0	777	3
15:48:00	1045	1019	375	394	163.00	10.70	5.96	0	254	3
15:52:00	1028	990	375	394	151.60	14.53	3.13	0	86	3
15:56:00	995	956	375	394	95.20	16.21	1.76	0	49	3
16:00:00	951	925	373	376	45.30	14.06	3.03	5	61	1

D103016.XLS

10/30/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.47	0.00	0.01	0.00	0.32	48.80	1051	841	914	1220
16:04:00	0.47	0.00	0.01	0.00	0.33	23.00	1149	763	970	1220
16:08:00	0.47	0.00	0.01	0.00	0.33	19.30	1116	719	1038	1220
16:12:00	0.47	0.00	0.01	0.00	0.32	19.30	1154	756	1107	1220
16:16:00	0.48	0.00	0.01	0.00	0.34	19.30	1221	790	1138	1189
16:20:00	0.47	0.00	0.01	0.00	0.33	16.70	1221	816	1138	1058
16:24:00	0.48	0.00	0.01	0.00	0.36	16.70	1283	982	1252	924
16:28:00	0.43	0.00	0.01	0.00	0.33	16.70	1282	917	1198	1148
16:32:00	0.48	0.00	0.01	0.00	0.34	16.70	1282	917	1245	1022
16:36:00	0.49	0.00	0.01	0.00	0.33	16.70	1282	946	1200	1139
16:40:00	0.45	0.00	0.01	0.00	0.33	16.70	1231	996	1180	1139
16:44:00	0.45	0.00	0.01	0.00	0.33	16.70	1231	888	1180	981
16:48:00	0.44	0.00	0.01	0.00	0.00	16.70	1256	915	1180	1112
16:52:00	0.48	0.00	0.01	0.00	0.00	16.70	1228	877	1135	827
16:56:00	0.48	0.00	0.01	0.00	0.00	16.70	1228	877	1135	757
17:00:00	0.44	0.00	0.01	0.00	0.00	16.70	1256	936	1183	730
17:04:00	0.45	0.00	0.01	0.00	0.00	16.70	1282	936	1214	815
17:08:00	0.45	0.00	0.01	0.00	0.00	16.70	1282	944	1188	745
17:12:00	0.51	0.00	0.01	0.00	0.34	16.70	1224	971	1226	1087
17:16:00	0.51	0.56	14.60	0.00	0.33	39.40	1228	998	1226	1151
17:20:00	0.46	0.82	16.28	0.00	0.33	60.50	1402	998	1154	1151
17:24:00	0.46	0.74	16.76	0.00	0.33	56.90	1534	1024	1210	1187
17:28:00	0.46	0.77	17.02	0.00	0.33	56.90	1639	1051	1237	1216
17:32:00	0.46	0.88	16.93	0.00	0.33	69.20	1669	1051	1295	1244
17:36:00	0.46	0.97	17.41	0.00	0.33	78.50	1734	1080	1295	1274
17:40:00	0.46	0.91	17.36	0.00	0.33	97.90	1770	1080	1339	1307
17:44:00	0.46	0.65	16.25	0.00	0.33	115.20	1754	1080	1366	1333
17:48:00	0.46	0.66	15.59	0.00	0.33	123.00	1715	1080	1366	1333
17:52:00	0.46	0.70	15.59	0.00	0.33	136.00	1674	1080	1366	1333
17:56:00	0.46	0.72	15.59	0.00	0.33	139.50	1674	1080	1366	1333
18:00:00	0.47	0.80	15.49	0.00	0.33	144.90	1646	1097	1351	1319

D103016.XLS

10/30/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	951	925	373	376	45.30	14.06	3.03	5	61	1
16:04:00	905	867	373	376	18.80	12.09	8.16	49	401	1
16:08:00	884	832	373	376	15.60	14.82	11.72	176	1000	1
16:12:00	871	832	373	376	15.60	16.46	9.43	83	952	1
16:16:00	871	819	373	376	15.60	17.38	6.06	27	698	1
16:20:00	851	819	373	376	15.60	18.17	2.25	12	264	1
16:24:00	851	803	373	376	15.60	18.87	0.34	0	10	1
16:28:00	851	803	373	376	15.60	18.12	3.47	0	484	1
16:32:00	836	803	373	376	15.60	18.43	1.66	0	193	1
16:36:00	836	787	373	376	15.60	16.31	3.37	15	210	1
16:40:00	809	787	373	376	15.60	18.17	0.88	34	34	1
16:44:00	823	774	373	376	15.60	17.70	3.03	7	242	1
16:48:00	823	774	373	376	15.60	18.26	2.49	7	227	1
16:52:00	810	774	373	376	15.60	18.78	0.44	7	27	1
16:56:00	795	761	373	376	15.60	18.78	0.20	7	7	1
17:00:00	795	761	373	376	15.60	18.78	0.20	7	7	1
17:04:00	795	761	373	376	15.60	18.29	2.15	7	98	1
17:08:00	781	761	373	376	15.60	17.63	3.71	7	237	1
17:12:00	781	747	373	376	15.60	18.39	1.91	7	225	1
17:16:00	778	744	373	376	34.00	6.69	7.38	47	37	1
17:20:00	807	773	373	376	48.20	5.91	8.21	0	90	1
17:24:00	820	788	373	376	48.20	5.01	8.94	0	90	1
17:28:00	820	802	373	376	48.20	5.30	8.60	0	105	1
17:32:00	833	819	373	376	62.10	5.57	8.60	0	105	1
17:36:00	851	838	373	376	71.20	5.06	8.69	0	117	1
17:40:00	868	855	373	376	92.30	4.74	8.79	0	117	1
17:44:00	901	872	373	376	110.50	4.59	8.79	0	117	1
17:48:00	901	886	373	376	118.40	5.98	8.35	0	117	1
17:52:00	918	900	373	376	131.70	5.98	8.35	0	117	1
17:56:00	931	913	373	376	135.20	5.71	8.35	0	117	1
18:00:00	938	917	369	388	140.60	5.71	8.35	0	110	0

D103018.XLS

10/30/91 18:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
18:00:00	0.47	0.80	15.49	0.00	0.33	144.90	1646	1097	1351	1319
18:04:00	0.47	0.68	16.01	0.00	0.33	148.00	1673	1097	1351	1319
18:08:00	0.47	0.71	16.01	0.00	0.33	156.70	1700	1097	1351	1319
18:12:00	0.47	0.74	16.01	0.00	0.33	159.60	1700	1123	1351	1319
18:16:00	0.47	0.82	16.01	0.00	0.32	165.60	1674	1123	1351	1319
18:20:00	0.47	0.87	15.68	0.00	0.33	165.60	1674	1123	1351	1319
18:24:00	0.47	0.73	15.68	0.00	0.33	165.60	1675	1123	1351	1319
18:28:00	0.47	0.69	15.68	0.00	0.33	165.60	1675	1123	1351	1319
18:32:00	0.47	0.75	15.68	0.00	0.33	168.50	1675	1123	1351	1319
18:36:00	0.47	0.77	15.68	0.00	0.33	171.60	1702	1123	1351	1345
18:40:00	0.47	0.93	15.68	0.00	0.33	171.60	1711	1149	1351	1345
18:44:00	0.47	0.86	15.68	0.00	0.34	171.60	1711	1149	1377	1345
18:48:00	0.47	0.68	15.68	0.00	0.33	171.60	1711	1149	1377	1345
18:52:00	0.47	0.71	15.68	0.00	0.34	174.20	1711	1149	1377	1345
18:56:00	0.47	0.77	15.68	0.00	0.33	174.20	1711	1149	1377	1345
19:00:00	0.47	0.91	15.68	0.00	0.33	174.20	1711	1149	1377	1345
19:04:00	0.47	0.87	15.68	0.00	0.32	174.20	1711	1149	1377	1345
19:08:00	0.47	0.81	15.68	0.00	0.33	174.20	1711	1149	1377	1345
19:12:00	0.47	0.69	15.68	0.00	0.33	174.20	1740	1149	1377	1345
19:16:00	0.47	0.69	15.43	0.00	0.33	174.20	1740	1149	1379	1345
19:20:00	0.47	0.70	15.43	0.00	0.32	171.60	1740	1149	1372	1345
19:24:00	0.47	0.74	15.06	0.00	0.33	168.80	1740	1149	1372	1345
19:28:00	0.47	0.94	15.06	0.00	0.33	168.80	1740	1149	1398	1345
19:32:00	0.47	0.90	15.06	0.00	0.33	168.80	1740	1176	1398	1372
19:36:00	0.47	0.86	15.06	0.00	0.33	168.80	1740	1176	1398	1372
19:40:00	0.47	0.67	15.06	0.00	0.34	166.00	1740	1176	1398	1372
19:44:00	0.47	0.70	15.06	0.00	0.33	166.00	1740	1176	1398	1372
19:48:00	0.47	0.75	15.06	0.00	0.33	166.00	1773	1176	1398	1372
19:52:00	0.47	0.91	15.06	0.00	0.32	163.30	1750	1176	1398	1372
19:56:00	0.47	0.86	14.78	0.00	0.33	163.30	1750	1176	1398	1372
20:00:00	0.49	0.65	14.84	0.00	0.33	162.70	1732	1187	1398	1380

D103018.XLS

10/30/91 18:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
18:00:00	938	917	369	388	140.60	5.71	8.35	0	110	0
18:04:00	938	904	369	388	143.60	5.57	8.60	0	110	0
18:08:00	952	904	369	388	152.50	4.91	8.94	0	110	0
18:12:00	966	918	369	388	155.30	4.93	8.94	0	110	0
18:16:00	966	918	369	388	161.10	4.64	8.94	0	122	0
18:20:00	966	918	369	388	161.10	4.35	8.94	0	122	0
18:24:00	980	934	369	388	161.10	4.27	9.28	0	122	0
18:28:00	980	934	369	388	161.10	4.57	9.04	0	122	0
18:32:00	980	934	369	388	164.20	3.93	9.33	0	134	0
18:36:00	993	934	369	388	167.30	4.05	9.33	0	134	0
18:40:00	993	949	369	388	167.30	4.01	9.43	0	134	0
18:44:00	993	949	369	388	167.30	3.69	9.43	0	134	0
18:48:00	993	949	369	388	167.30	3.76	9.67	0	147	0
18:52:00	1006	949	369	388	169.90	4.03	9.62	0	147	0
18:56:00	1006	966	369	388	169.90	4.13	9.33	0	147	0
19:00:00	1006	966	369	388	169.90	4.08	9.38	0	147	0
19:04:00	1006	966	369	388	169.90	3.76	9.38	0	147	0
19:08:00	1020	966	369	388	169.90	3.76	9.62	0	147	0
19:12:00	1020	966	369	388	169.90	3.79	9.67	0	147	0
19:16:00	1020	966	333	418	169.90	4.10	9.38	0	159	0
19:20:00	1020	979	307	471	167.00	3.81	9.67	0	159	0
19:24:00	1020	979	333	471	164.40	3.71	9.67	0	159	0
19:28:00	1020	979	362	471	164.40	3.59	9.72	0	159	0
19:32:00	1020	979	362	471	164.40	3.18	9.96	0	159	0
19:36:00	1020	979	362	443	164.40	4.57	9.62	0	147	0
19:40:00	1020	979	362	408	161.40	3.44	10.06	0	159	0
19:44:00	1020	979	362	408	161.40	3.15	10.06	0	159	0
19:48:00	1035	979	362	408	161.40	3.15	10.06	0	159	0
19:52:00	1035	979	362	408	161.40	3.15	10.06	0	159	0
19:56:00	1035	979	362	408	158.70	3.47	9.82	0	159	0
20:00:00	1035	990	374	393	158.70	3.57	9.82	0	154	0

D103020.XLS

10/30/91 20:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
20:00:00	0.49	0.65	14.84	0.00	0.33	162.70	1732	1187	1398	1380
20:04:00	0.49	0.68	14.84	0.00	0.32	162.70	1732	1187	1398	1380
20:08:00	0.49	0.71	14.84	0.00	0.32	162.70	1760	1187	1363	1380
20:12:00	0.45	0.90	14.84	0.00	0.33	160.00	1760	1187	1392	1380
20:16:00	0.49	0.81	14.84	0.00	0.32	160.00	1760	1187	1392	1380
20:20:00	0.49	0.67	14.84	0.00	0.33	160.00	1760	1187	1392	1380
20:24:00	0.48	0.70	14.84	0.00	0.33	160.00	1760	1187	1392	1380
20:28:00	0.48	0.74	14.84	0.00	0.33	160.00	1760	1187	1392	1380
20:32:00	0.44	0.88	14.84	0.00	0.33	162.80	1760	1187	1392	1380
20:36:00	0.49	0.83	14.84	0.00	0.32	162.80	1760	1187	1392	1380
20:40:00	0.49	0.66	14.84	0.00	0.32	162.80	1760	1187	1392	1380
20:44:00	0.49	0.70	14.84	0.00	0.32	162.80	1760	1187	1392	1380
20:48:00	0.50	0.83	14.84	0.00	0.33	162.80	1760	1187	1392	1380
20:52:00	0.45	0.89	14.84	0.00	0.33	162.80	1760	1187	1392	1380
20:56:00	0.45	0.79	14.84	0.00	0.33	162.80	1760	1187	1392	1380
21:00:00	0.45	0.67	14.84	0.00	0.32	162.80	1755	1187	1392	1380
21:04:00	0.45	0.69	15.09	0.00	0.34	162.80	1752	1187	1392	1380
21:08:00	0.45	0.75	15.09	0.00	0.33	159.70	1781	1187	1392	1380
21:12:00	0.45	0.89	15.09	0.00	0.34	159.70	1781	1187	1392	1380
21:16:00	0.45	0.82	14.84	0.00	0.32	159.70	1781	1187	1392	1380
21:20:00	0.45	0.66	14.84	0.00	0.33	159.70	1781	1187	1392	1380
21:24:00	0.45	0.68	14.84	0.00	0.32	162.40	1781	1187	1392	1380
21:28:00	0.45	0.71	14.84	0.00	0.33	162.40	1781	1187	1392	1380
21:32:00	0.45	0.89	14.84	0.00	0.32	162.40	1781	1187	1392	1380
21:36:00	0.45	0.88	14.84	0.00	0.32	162.40	1781	1187	1392	1380
21:40:00	0.45	0.65	14.84	0.00	0.33	162.40	1781	1187	1392	1380
21:44:00	0.45	0.67	14.84	0.00	0.32	162.40	1781	1187	1392	1380
21:48:00	0.45	0.69	14.84	0.00	0.33	162.40	1781	1187	1418	1380
21:52:00	0.45	0.73	14.84	0.00	0.32	165.20	1781	1187	1418	1380
21:56:00	0.45	0.91	14.84	0.00	0.34	167.90	1781	1187	1418	1380
22:00:00	0.48	0.91	14.82	0.00	0.33	168.80	1761	1214	1414	1383

D103020.XLS

10/30/91 20:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
20:00:00	1035	990	374	393	158.70	3.57	9.82	0	154	0
20:04:00	1035	990	374	393	158.70	3.88	9.57	0	154	0
20:08:00	1035	990	374	393	158.70	3.59	9.57	0	154	0
20:12:00	1035	990	374	393	156.00	3.86	9.57	0	154	0
20:16:00	1035	990	374	393	156.00	3.86	9.57	0	154	0
20:20:00	1035	990	374	393	156.00	3.86	9.57	0	154	0
20:24:00	1035	990	374	393	156.00	3.91	9.57	0	154	0
20:28:00	1035	990	374	393	156.00	3.88	9.57	0	154	0
20:32:00	1035	990	374	393	158.70	3.61	9.82	0	154	0
20:36:00	1035	990	374	393	158.70	3.61	9.57	0	154	0
20:40:00	1035	990	374	393	158.70	3.61	9.57	0	154	0
20:44:00	1035	990	374	393	158.70	3.98	9.57	0	154	0
20:48:00	1035	990	374	393	158.70	3.96	9.57	0	154	0
20:52:00	1035	990	374	393	158.70	3.69	9.57	0	154	0
20:56:00	1035	1004	374	393	158.70	3.64	9.57	0	154	0
21:00:00	1035	1004	374	393	158.70	3.91	9.57	0	154	0
21:04:00	1035	1004	374	393	158.70	3.91	9.57	0	166	0
21:08:00	1035	1004	374	393	155.60	3.66	9.57	0	166	0
21:12:00	1035	1004	374	393	155.60	3.66	9.57	0	166	0
21:16:00	1048	1004	374	393	155.60	3.57	9.82	0	166	0
21:20:00	1048	1004	374	420	155.60	3.83	9.57	0	166	0
21:24:00	1048	1004	374	395	158.40	3.47	9.82	0	166	0
21:28:00	1048	1004	374	395	158.40	3.74	9.82	0	166	0
21:32:00	1048	1004	374	395	158.40	3.37	9.82	0	166	0
21:36:00	1048	1004	374	395	158.40	3.40	9.82	0	166	0
21:40:00	1048	1004	374	395	158.40	3.74	9.82	0	166	0
21:44:00	1048	1017	374	395	158.40	3.74	9.82	0	178	0
21:48:00	1048	1017	374	395	158.40	3.74	9.57	0	178	0
21:52:00	1048	1017	374	395	161.40	3.74	9.52	0	178	0
21:56:00	1048	1017	374	395	164.10	3.74	9.77	0	178	0
22:00:00	1063	1023	374	402	164.90	3.44	9.87	0	181	1

D103022.XLS

10/30/91 22:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
22:00:00	0.48	0.91	14.82	0.00	0.33	168.80	1761	1214	1414	1383
22:04:00	0.44	0.65	14.82	0.00	0.33	168.80	1762	1214	1414	1383
22:08:00	0.44	0.68	14.82	0.00	0.33	168.80	1788	1214	1414	1383
22:12:00	0.44	0.71	14.82	0.00	0.32	168.80	1788	1214	1414	1383
22:16:00	0.44	0.86	14.82	0.00	0.32	168.80	1788	1214	1414	1383
22:20:00	0.44	0.89	14.82	0.00	0.32	168.80	1788	1214	1414	1383
22:24:00	0.48	0.84	14.82	0.00	0.32	168.80	1788	1214	1414	1383
22:28:00	0.43	0.65	14.82	0.00	0.32	168.80	1788	1214	1414	1383
22:32:00	0.43	0.67	14.82	0.00	0.33	168.80	1788	1214	1414	1383
22:36:00	0.43	0.70	14.82	0.00	0.32	168.80	1788	1214	1414	1383
22:40:00	0.43	0.75	14.82	0.00	0.34	168.80	1788	1214	1414	1383
22:44:00	0.43	0.89	14.82	0.00	0.33	168.80	1788	1214	1414	1383
22:48:00	0.48	0.80	14.82	0.00	0.34	171.90	1788	1214	1414	1383
22:52:00	0.47	0.66	14.82	0.00	0.34	171.90	1788	1214	1414	1383
22:56:00	0.43	0.68	14.82	0.00	0.34	174.50	1788	1214	1414	1383
23:00:00	0.48	0.72	15.09	0.00	0.32	174.50	1788	1214	1387	1383
23:04:00	0.43	0.87	15.09	0.00	0.34	171.90	1788	1214	1417	1383
23:08:00	0.48	0.88	15.09	0.00	0.32	171.90	1788	1214	1417	1383
23:12:00	0.48	0.83	15.09	0.00	0.33	171.90	1788	1214	1417	1383
23:16:00	0.48	0.66	15.09	0.00	0.32	171.90	1788	1214	1417	1383
23:20:00	0.48	0.68	15.09	0.00	0.32	171.90	1788	1214	1417	1383
23:24:00	0.48	0.70	14.81	0.00	0.32	174.70	1788	1214	1417	1383
23:28:00	0.42	0.76	14.81	0.00	0.32	174.70	1788	1214	1417	1383
23:32:00	0.42	0.88	14.81	0.00	0.32	174.70	1788	1214	1388	1383
23:36:00	0.43	0.83	15.10	0.00	0.33	171.90	1788	1214	1388	1383
23:40:00	0.47	0.75	15.10	0.00	0.33	171.90	1788	1214	1388	1383
23:44:00	0.48	0.64	15.10	0.00	0.33	171.90	1788	1214	1420	1383
23:48:00	0.43	0.65	14.82	0.00	0.32	171.90	1788	1240	1420	1383
23:52:00	0.48	0.67	14.82	0.00	0.32	174.50	1754	1240	1420	1383
23:56:00	0.42	0.84	14.82	0.00	0.33	174.50	1754	1240	1391	1383
0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D103022.XLS

10/30/91 22:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psig	%	%	ppm	ppm	ppm
22:00:00	1063	1023	374	402	164.90	3.44	9.87	0	181	1
22:04:00	1063	1023	374	402	164.90	3.40	9.92	0	181	1
22:08:00	1063	1023	374	431	164.90	3.79	9.67	0	181	1
22:12:00	1063	1023	374	431	164.90	3.76	9.67	0	181	1
22:16:00	1063	1023	374	431	164.90	3.49	9.62	0	181	1
22:20:00	1063	1023	374	431	164.90	3.52	9.62	0	181	1
22:24:00	1063	1023	374	431	164.90	3.49	9.87	0	181	1
22:28:00	1063	1023	374	431	164.90	3.76	9.87	0	181	1
22:32:00	1063	1023	374	431	164.90	3.76	9.87	0	181	1
22:36:00	1063	1023	374	431	164.90	3.83	9.62	0	181	1
22:40:00	1063	1023	374	431	164.90	3.81	9.62	0	181	1
22:44:00	1063	1023	374	431	164.90	3.49	9.62	0	181	1
22:48:00	1063	1023	374	457	167.70	3.30	9.92	0	181	1
22:52:00	1077	1037	374	457	167.70	3.59	9.92	0	181	1
22:56:00	1077	1037	374	457	170.70	3.59	9.92	0	181	1
23:00:00	1077	1037	374	457	170.70	3.59	9.62	0	181	1
23:04:00	1077	1037	374	457	170.70	3.59	9.62	0	181	1
23:08:00	1077	1037	374	457	167.70	3.52	9.62	0	181	1
23:12:00	1077	1037	374	457	167.70	3.44	9.92	0	181	1
23:16:00	1077	1037	374	457	167.70	3.47	9.72	0	181	1
23:20:00	1077	1037	374	457	167.70	3.47	9.72	0	181	1
23:24:00	1077	1037	374	457	170.50	3.47	9.67	0	181	1
23:28:00	1077	1037	374	483	170.50	3.47	9.72	0	181	1
23:32:00	1077	1037	374	483	170.50	3.74	9.72	0	181	1
23:36:00	1077	1037	374	483	167.70	3.49	9.72	0	193	1
23:40:00	1077	1037	374	483	167.70	3.54	9.72	0	193	1
23:44:00	1077	1037	374	483	167.70	3.54	9.72	0	193	1
23:48:00	1077	1050	374	483	170.40	3.81	9.72	0	193	1
23:52:00	1090	1050	374	483	170.40	4.10	9.28	0	181	1
23:56:00	1090	1050	374	483	170.40	4.32	9.48	0	171	1
0:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

10/31/91 0:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
0:00:00	0.42	0.77	14.91	0.00	0.32	177.30	1737	1237	1403	1381
0:04:00	0.48	0.63	14.91	0.00	0.32	177.30	1739	1237	1403	1381
0:08:00	0.47	0.66	14.91	0.00	0.32	177.30	1739	1237	1403	1381
0:12:00	0.43	0.70	14.91	0.00	0.33	177.30	1739	1237	1375	1381
0:16:00	0.47	0.82	14.91	0.00	0.32	177.30	1739	1237	1375	1381
0:20:00	0.46	0.64	14.91	0.00	0.33	177.30	1739	1237	1375	1381
0:24:00	0.46	0.64	14.91	0.00	0.33	177.30	1739	1237	1375	1381
0:28:00	0.42	0.65	14.91	0.00	0.33	177.30	1739	1237	1375	1381
0:32:00	0.42	0.69	14.91	0.00	0.33	177.30	1739	1237	1375	1381
0:36:00	0.42	0.85	14.91	0.00	0.33	177.30	1739	1237	1348	1381
0:40:00	0.47	0.75	14.91	0.00	0.32	177.30	1739	1237	1378	1381
0:44:00	0.42	0.64	14.91	0.00	0.34	177.30	1739	1237	1337	1381
0:48:00	0.42	0.67	14.91	0.00	0.32	177.30	1739	1237	1348	1381
0:52:00	0.42	0.72	14.91	0.00	0.34	177.30	1739	1237	1380	1381
0:56:00	0.43	0.83	14.91	0.00	0.33	177.30	1739	1237	1378	1381
1:00:00	0.47	0.67	14.91	0.00	0.34	177.30	1739	1237	1378	1381
1:04:00	0.47	0.64	14.91	0.00	0.33	177.30	1739	1237	1350	1381
1:08:00	0.41	0.66	14.91	0.00	0.34	177.30	1739	1237	1312	1381
1:12:00	0.46	0.68	14.91	0.00	0.33	173.80	1739	1237	1338	1381
1:16:00	0.46	0.70	14.91	0.00	0.34	171.00	1767	1237	1338	1381
1:20:00	0.46	0.86	14.91	0.00	0.32	171.00	1767	1237	1386	1381
1:24:00	0.41	0.82	14.91	0.00	0.34	171.00	1767	1237	1386	1381
1:28:00	0.42	0.74	14.91	0.00	0.33	173.70	1740	1237	1360	1381
1:32:00	0.41	0.64	14.91	0.00	0.33	173.70	1767	1237	1360	1381
1:36:00	0.45	0.66	14.91	0.00	0.33	173.70	1767	1237	1353	1381
1:40:00	0.45	0.69	14.91	0.00	0.33	173.70	1771	1237	1379	1381
1:44:00	0.45	0.89	14.91	0.00	0.34	173.70	1740	1237	1386	1381
1:48:00	0.41	0.81	14.91	0.00	0.34	173.70	1740	1237	1382	1381
1:52:00	0.45	0.70	14.91	0.00	0.33	173.70	1740	1237	1351	1381
1:56:00	0.45	0.63	14.91	0.00	0.34	173.70	1740	1237	1351	1381
2:00:00	0.43	0.66	14.93	0.00	0.33	174.40	1756	1234	1328	1363

D103100.XLS

10/31/91 0:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
0:00:00	1087	1047	376	490	173.40	4.20	9.43	0	173	1
0:04:00	1087	1047	376	490	173.40	4.52	9.38	0	173	1
0:08:00	1087	1047	376	490	173.40	4.59	9.38	0	173	1
0:12:00	1087	1047	376	490	173.40	4.54	9.38	0	173	1
0:16:00	1087	1047	376	490	173.40	4.54	9.38	0	173	1
0:20:00	1087	1047	376	490	173.40	4.54	9.33	0	173	1
0:24:00	1087	1047	376	490	173.40	4.54	9.33	0	173	1
0:28:00	1087	1047	376	490	173.40	4.54	9.33	0	173	1
0:32:00	1087	1047	376	490	173.40	4.30	9.33	0	173	1
0:36:00	1087	1047	376	490	173.40	4.30	9.33	0	173	1
0:40:00	1087	1047	376	490	173.40	4.30	9.33	0	173	1
0:44:00	1087	1047	376	490	173.40	4.30	9.33	0	173	1
0:48:00	1087	1047	376	490	173.40	4.66	9.09	0	173	1
0:52:00	1087	1047	376	490	173.40	4.37	9.33	0	173	1
0:56:00	1087	1047	376	490	173.40	4.37	9.33	0	173	1
1:00:00	1087	1047	376	490	173.40	4.37	9.33	0	173	1
1:04:00	1087	1047	376	490	173.40	4.37	9.33	0	173	1
1:08:00	1087	1047	376	490	173.40	4.37	9.33	0	173	1
1:12:00	1087	1047	376	490	169.90	4.64	9.09	0	173	1
1:16:00	1087	1047	376	490	167.10	4.35	9.33	0	173	1
1:20:00	1087	1047	376	490	167.10	4.35	9.33	0	173	1
1:24:00	1087	1047	376	490	167.10	4.35	9.33	0	173	1
1:28:00	1087	1047	376	490	169.80	4.35	9.33	0	173	1
1:32:00	1087	1047	376	490	169.80	4.42	9.43	0	156	1
1:36:00	1087	1047	376	490	169.80	4.42	9.18	0	169	1
1:40:00	1087	1047	376	490	169.80	4.42	9.43	0	169	1
1:44:00	1087	1047	376	490	169.80	4.42	9.43	0	169	1
1:48:00	1087	1047	376	490	169.80	4.42	9.43	0	169	1
1:52:00	1087	1047	376	490	169.80	4.42	9.43	0	169	1
1:56:00	1087	1047	376	490	169.80	4.42	9.43	0	169	1
2:00:00	1091	1049	370	505	170.50	4.52	9.23	0	164	3

D103102.XLS

10/31/91 2:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
2:00:00	0.43	0.66	14.93	0.00	0.33	174.40	1756	1234	1328	1363
2:04:00	0.43	0.69	14.93	0.00	0.34	174.40	1756	1234	1377	1363
2:08:00	0.43	0.74	14.93	0.00	0.32	174.40	1756	1234	1382	1363
2:12:00	0.43	0.80	14.93	0.00	0.34	174.40	1756	1234	1372	1363
2:16:00	0.43	0.73	14.93	0.00	0.33	174.40	1756	1234	1371	1363
2:20:00	0.43	0.62	14.93	0.00	0.33	174.40	1756	1234	1371	1363
2:24:00	0.43	0.64	14.93	0.00	0.32	174.40	1756	1234	1370	1363
2:28:00	0.43	0.67	14.93	0.00	0.32	174.40	1756	1234	1370	1363
2:32:00	0.43	0.68	14.93	0.00	0.33	174.40	1756	1234	1370	1363
2:36:00	0.43	0.80	14.93	0.00	0.33	174.40	1756	1234	1382	1363
2:40:00	0.43	0.73	14.93	0.00	0.32	174.40	1756	1234	1343	1363
2:44:00	0.43	0.62	14.93	0.00	0.32	174.40	1756	1234	1340	1363
2:48:00	0.37	0.64	14.93	0.00	0.32	174.40	1756	1234	1327	1363
2:52:00	0.42	0.67	14.93	0.00	0.33	174.40	1756	1234	1349	1363
2:56:00	0.42	0.71	14.93	0.00	0.32	174.40	1756	1234	1349	1363
3:00:00	0.42	0.87	14.93	0.00	0.34	174.40	1756	1234	1380	1363
3:04:00	0.42	0.80	14.93	0.00	0.33	174.40	1756	1234	1377	1363
3:08:00	0.42	0.69	14.93	0.00	0.34	171.60	1756	1234	1278	1363
3:12:00	0.42	0.63	14.93	0.00	0.33	171.60	1751	1234	1318	1363
3:16:00	0.42	0.65	14.93	0.00	0.34	168.70	1778	1234	1319	1363
3:20:00	0.42	0.67	14.93	0.00	0.33	168.70	1778	1234	1383	1363
3:24:00	0.46	0.69	14.93	0.00	0.34	168.70	1780	1234	1383	1363
3:28:00	0.47	0.77	14.93	0.00	0.32	168.70	1780	1234	1386	1363
3:32:00	0.47	0.74	14.93	0.00	0.34	168.70	1780	1234	1386	1363
3:36:00	0.47	0.70	14.93	0.00	0.33	171.30	1754	1234	1355	1363
3:40:00	0.47	0.63	14.93	0.00	0.34	171.30	1761	1234	1355	1363
3:44:00	0.42	0.65	14.93	0.00	0.32	171.30	1761	1234	1384	1363
3:48:00	0.41	0.67	14.93	0.00	0.34	171.30	1761	1234	1384	1363
3:52:00	0.41	0.76	14.93	0.00	0.33	171.30	1761	1234	1384	1363
3:56:00	0.41	0.74	14.93	0.00	0.32	171.30	1761	1234	1379	1363
4:00:00	0.46	0.71	14.98	0.00	0.33	171.60	1761	1247	1351	1365

D103102.XLS

10/31/91 2:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
2:00:00	1091	1049	370	505	170.50	4.52	9.23	0	164	3
2:04:00	1091	1049	370	505	170.50	4.27	9.23	0	164	3
2:08:00	1091	1049	370	505	170.50	4.27	9.23	0	164	3
2:12:00	1091	1049	370	505	170.50	4.27	9.23	0	164	3
2:16:00	1091	1049	370	505	170.50	4.30	9.23	0	164	3
2:20:00	1091	1049	370	505	170.50	4.57	9.23	0	164	3
2:24:00	1091	1049	370	505	170.50	4.57	9.23	0	164	3
2:28:00	1091	1049	370	505	170.50	4.59	9.23	0	164	3
2:32:00	1091	1049	370	505	170.50	4.52	9.23	0	164	3
2:36:00	1091	1049	370	505	170.50	4.52	9.23	0	164	3
2:40:00	1091	1049	370	505	170.50	4.25	9.23	0	164	3
2:44:00	1091	1049	370	505	170.50	4.54	9.23	0	164	3
2:48:00	1091	1049	370	505	170.50	4.54	9.23	0	164	3
2:52:00	1091	1049	370	505	170.50	4.57	9.23	0	164	3
2:56:00	1091	1049	370	531	170.50	4.25	9.48	0	164	3
3:00:00	1091	1049	370	531	170.50	4.25	9.48	0	164	3
3:04:00	1091	1049	370	531	170.50	4.23	9.48	0	164	3
3:08:00	1091	1049	370	531	167.70	4.23	9.48	0	164	3
3:12:00	1091	1049	370	531	167.70	4.23	9.23	0	164	3
3:16:00	1091	1049	370	531	165.10	4.54	9.23	0	164	3
3:20:00	1091	1049	370	531	165.10	4.57	9.23	0	164	3
3:24:00	1091	1049	370	531	165.10	4.23	9.48	0	164	3
3:28:00	1091	1049	370	347	165.10	4.23	9.48	0	164	3
3:32:00	1091	1049	370	216	165.10	4.13	9.48	0	164	3
3:36:00	1091	1049	344	327	165.10	6.15	8.94	0	164	3
3:40:00	1091	1049	344	327	167.70	4.49	9.28	0	176	3
3:44:00	1091	1062	344	423	167.70	4.49	9.28	0	176	3
3:48:00	1091	1062	371	454	167.70	4.30	9.28	0	176	3
3:52:00	1091	1062	371	454	167.70	4.30	9.28	0	176	3
3:56:00	1091	1062	371	454	167.70	4.27	9.28	0	176	3
4:00:00	1079	1062	370	402	167.70	4.35	9.38	0	181	1

D103104.XLS

10/31/91 4:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
4:00:00	0.46	0.71	14.98	0.00	0.33	171.60	1761	1247	1351	1365
4:04:00	0.46	0.63	14.98	0.00	0.33	171.60	1787	1247	1349	1365
4:08:00	0.46	0.66	14.98	0.00	0.32	171.60	1787	1247	1361	1365
4:12:00	0.46	0.67	14.98	0.00	0.33	171.60	1789	1247	1361	1365
4:16:00	0.41	0.73	14.98	0.00	0.33	171.60	1760	1247	1361	1365
4:20:00	0.46	0.74	14.98	0.00	0.32	171.60	1760	1247	1384	1365
4:24:00	0.42	0.70	14.98	0.00	0.32	171.60	1764	1247	1349	1365
4:28:00	0.42	0.62	14.98	0.00	0.32	171.60	1764	1247	1349	1365
4:32:00	0.46	0.64	14.98	0.00	0.34	171.60	1764	1247	1362	1365
4:36:00	0.48	0.66	14.62	0.00	0.33	171.60	1764	1247	1392	1365
4:40:00	0.48	0.69	14.62	0.00	0.32	174.20	1737	1247	1353	1365
4:44:00	0.47	0.73	14.36	0.00	0.32	174.20	1737	1247	1344	1365
4:48:00	0.47	0.61	14.36	0.00	0.33	174.20	1765	1247	1311	1365
4:52:00	0.46	0.64	14.36	0.00	0.33	174.20	1765	1247	1365	1365
4:56:00	0.41	0.68	14.07	0.00	0.34	174.20	1760	1247	1365	1365
5:00:00	0.48	0.74	14.07	0.00	0.33	174.20	1760	1247	1365	1365
5:04:00	0.48	0.60	14.07	0.00	0.34	174.20	1734	1247	1365	1365
5:08:00	0.48	0.63	14.07	0.00	0.32	176.90	1763	1247	1325	1365
5:12:00	0.48	0.66	14.07	0.00	0.34	176.90	1760	1247	1366	1365
5:16:00	0.43	0.75	14.07	0.00	0.32	176.90	1760	1247	1366	1365
5:20:00	0.48	0.74	14.07	0.00	0.33	176.90	1760	1247	1366	1365
5:24:00	0.48	0.60	14.07	0.00	0.32	176.90	1760	1247	1366	1365
5:28:00	0.42	0.63	14.07	0.00	0.32	176.90	1760	1247	1366	1365
5:32:00	0.47	0.65	14.07	0.00	0.33	176.90	1760	1247	1366	1365
5:36:00	0.47	0.66	14.07	0.00	0.33	176.90	1760	1247	1366	1365
5:40:00	0.42	0.68	14.07	0.00	0.33	176.90	1760	1247	1366	1365
5:44:00	0.42	0.00	14.07	0.00	0.33	173.70	1318	1216	1330	1339
5:48:00	0.42	0.62	13.75	0.00	0.34	176.40	1552	1179	1346	1314
5:52:00	0.47	0.74	13.75	0.00	0.33	176.40	1552	1179	1303	1314
5:56:00	0.42	0.00	13.75	0.00	0.34	176.40	1457	1179	1161	1314
6:00:00	0.48	0.00	14.20	0.00	0.33	171.90	1178	1141	1169	1278

D103104.XLS

10/31/91 4:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
4:00:00	1079	1062	370	402	167.70	4.35	9.38	0	181	1
4:04:00	1079	1062	370	402	167.70	4.35	9.38	0	181	1
4:08:00	1079	1062	370	402	167.70	4.64	9.38	0	181	1
4:12:00	1094	1062	370	341	167.70	4.59	9.38	0	181	1
4:16:00	1094	1062	370	299	167.70	4.59	9.38	0	181	1
4:20:00	1094	1062	370	299	167.70	4.59	9.38	0	181	1
4:24:00	1094	1062	370	327	167.70	4.64	9.38	0	181	1
4:28:00	1094	1062	370	441	167.70	4.91	9.13	0	181	1
4:32:00	1094	1062	370	441	167.70	4.91	9.13	0	181	1
4:36:00	1094	1062	370	342	167.70	4.79	9.13	0	181	1
4:40:00	1094	1062	370	271	170.50	4.49	9.13	0	181	1
4:44:00	1094	1062	370	271	170.50	4.15	9.43	0	181	1
4:48:00	1094	1062	370	271	170.50	4.20	9.43	0	181	1
4:52:00	1094	1062	370	241	170.50	4.20	9.43	0	181	1
4:56:00	1094	1062	370	238	170.50	3.91	9.72	0	181	1
5:00:00	1094	1062	370	259	170.50	3.59	9.72	0	181	1
5:04:00	1094	1062	370	259	173.10	3.81	9.72	0	181	1
5:08:00	1094	1062	370	259	173.10	3.81	9.72	0	181	1
5:12:00	1094	1062	370	282	173.10	3.86	9.72	0	181	1
5:16:00	1094	1062	370	255	173.10	3.59	9.72	0	181	1
5:20:00	1094	1062	370	270	173.10	3.52	9.72	0	181	1
5:24:00	1094	1062	370	239	173.10	3.79	9.72	0	193	1
5:28:00	1094	1062	370	265	173.10	3.79	9.72	0	193	1
5:32:00	1094	1062	370	265	173.10	3.83	9.72	0	193	1
5:36:00	1094	1062	370	265	173.10	3.47	9.96	0	193	1
5:40:00	1094	1062	370	232	173.10	3.47	9.72	0	193	1
5:44:00	1094	1062	370	232	170.40	7.77	6.50	0	115	1
5:48:00	1076	1048	370	268	173.40	12.62	4.79	0	42	1
5:52:00	1076	1048	370	268	173.40	5.93	8.30	0	88	1
5:56:00	1076	1048	370	268	170.20	3.76	9.77	0	100	1
6:00:00	1047	1017	373	276	168.60	15.90	2.25	0	22	3

D103106.XLS

10/31/91 6:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
6:00:00	0.48	0.00	14.20	0.00	0.33	171.90	1178	1141	1169	1278
6:04:00	0.43	0.84	13.88	0.00	0.33	175.00	1514	1141	1284	1278
6:08:00	0.43	0.84	13.88	0.00	0.33	175.00	1612	1199	1228	1278
6:12:00	0.42	0.64	13.88	0.00	0.33	175.00	1678	1199	1228	1278
6:16:00	0.48	0.58	14.16	0.00	0.33	172.30	1678	1199	1287	1304
6:20:00	0.48	0.69	14.16	0.00	0.33	172.30	1681	1199	1318	1304
6:24:00	0.43	0.78	14.16	0.00	0.33	172.30	1708	1225	1348	1304
6:28:00	0.48	0.76	14.16	0.00	0.33	172.30	1737	1225	1333	1330
6:32:00	0.42	0.63	14.16	0.00	0.34	172.30	1737	1225	1333	1330
6:36:00	0.42	0.64	14.16	0.00	0.33	172.30	1737	1225	1332	1330
6:40:00	0.47	0.66	14.16	0.00	0.34	172.30	1737	1225	1337	1356
6:44:00	0.47	0.70	14.16	0.00	0.33	172.30	1763	1225	1337	1356
6:48:00	0.43	0.75	14.16	0.00	0.34	172.30	1763	1252	1337	1356
6:52:00	0.48	0.59	14.16	0.00	0.32	172.30	1763	1252	1336	1356
6:56:00	0.48	0.62	14.16	0.00	0.34	172.30	1763	1252	1375	1356
7:00:00	0.48	0.65	14.16	0.00	0.32	172.30	1737	1252	1383	1356
7:04:00	0.43	0.73	14.16	0.00	0.33	172.30	1737	1252	1368	1356
7:08:00	0.43	0.73	14.42	0.00	0.33	168.20	1737	1252	1198	1356
7:12:00	0.49	0.60	14.42	0.00	0.33	161.80	1737	1252	1283	1356
7:16:00	0.47	0.63	14.42	0.00	0.33	161.80	1765	1252	1407	1382
7:20:00	0.41	0.67	14.11	0.00	0.32	161.80	1765	1252	1407	1382
7:24:00	0.41	0.73	14.11	0.00	0.34	161.80	1765	1252	1409	1382
7:28:00	0.41	0.60	14.11	0.00	0.34	161.80	1765	1252	1383	1382
7:32:00	0.41	0.63	14.11	0.00	0.34	164.40	1765	1252	1383	1382
7:36:00	0.48	0.65	14.11	0.00	0.33	164.40	1765	1252	1383	1382
7:40:00	0.41	0.76	14.11	0.00	0.34	164.40	1765	1252	1383	1382
7:44:00	0.46	0.73	14.11	0.00	0.33	164.40	1765	1252	1383	1382
7:48:00	0.41	0.72	14.11	0.00	0.34	164.40	1765	1252	1383	1382
7:52:00	0.41	0.67	14.11	0.00	0.33	164.40	1765	1252	1383	1382
7:56:00	0.46	0.61	14.11	0.00	0.33	164.40	1765	1252	1383	1382
8:00:00	0.47	0.64	14.14	0.00	0.33	164.70	1772	1251	1378	1390

D103106.XLS

10/31/91 6:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
6:00:00	1047	1017	373	276	168.60	15.90	2.25	0	22	3
6:04:00	1047	1017	373	276	171.50	9.65	6.69	0	49	3
6:08:00	1047	1017	373	239	171.50	3.49	9.96	0	78	3
6:12:00	1061	1017	373	221	171.50	2.96	10.35	0	90	3
6:16:00	1061	1017	373	255	168.90	3.76	9.72	0	108	3
6:20:00	1061	1031	373	254	168.90	5.40	8.84	0	120	3
6:24:00	1061	1031	373	333	168.90	3.30	9.87	0	120	3
6:28:00	1061	1031	373	438	168.90	2.91	10.16	0	132	3
6:32:00	1077	1031	373	351	168.90	2.96	10.16	0	144	3
6:36:00	1077	1031	373	325	168.90	3.47	10.16	0	144	3
6:40:00	1077	1031	373	240	168.90	3.47	9.82	0	144	3
6:44:00	1077	1046	373	268	168.90	3.47	9.82	0	144	3
6:48:00	1077	1046	373	213	168.90	3.47	9.82	0	144	3
6:52:00	1077	1046	373	213	168.90	3.47	9.77	0	144	3
6:56:00	1077	1046	373	212	168.90	4.35	9.48	0	144	3
7:00:00	1077	1046	373	260	168.90	4.35	9.48	0	144	3
7:04:00	1077	1046	373	347	168.90	4.20	9.28	0	142	3
7:08:00	1077	1046	373	214	164.10	4.20	9.28	0	142	3
7:12:00	1077	1046	373	202	157.50	4.49	9.28	0	142	3
7:16:00	1077	1046	373	194	157.50	4.49	9.28	0	142	3
7:20:00	1077	1046	373	227	157.50	4.49	9.28	0	142	3
7:24:00	1077	1046	373	256	157.50	4.18	9.28	0	142	3
7:28:00	1077	1046	373	240	160.30	4.18	9.52	0	142	3
7:32:00	1077	1046	373	189	160.30	4.18	9.52	0	142	3
7:36:00	1077	1046	373	190	160.30	4.18	9.52	0	142	3
7:40:00	1077	1046	373	247	160.30	4.18	9.52	0	142	3
7:44:00	1077	1046	373	223	160.30	4.18	9.52	0	142	3
7:48:00	1077	1046	373	294	160.30	4.18	9.52	0	142	3
7:52:00	1077	1046	373	247	160.30	4.18	9.52	0	142	3
7:56:00	1077	1046	373	209	160.30	4.18	9.52	0	142	3
8:00:00	1076	1037	376	205	160.70	4.35	9.38	0	142	1

D103108.XLS

10/31/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.47	0.64	14.14	0.00	0.33	164.70	1772	1251	1378	1390
8:04:00	0.48	0.69	14.14	0.00	0.33	164.70	1772	1251	1389	1390
8:08:00	0.49	0.73	14.14	0.00	0.33	164.70	1772	1251	1389	1390
8:12:00	0.45	0.61	14.14	0.00	0.33	164.70	1772	1251	1389	1390
8:16:00	0.41	0.63	14.14	0.00	0.33	164.70	1772	1251	1389	1390
8:20:00	0.43	0.66	14.14	0.00	0.32	164.70	1772	1251	1362	1390
8:24:00	0.43	0.83	14.14	0.00	0.33	164.70	1772	1251	1394	1390
8:28:00	0.49	0.00	14.14	0.00	0.34	161.30	1587	1251	1250	1390
8:32:00	0.44	0.00	2.94	0.00	0.34	76.30	1301	955	998	1316
8:36:00	0.44	0.00	0.01	0.00	0.33	29.30	1246	835	1036	1316
8:40:00	0.44	0.00	0.01	0.00	0.32	20.50	1319	775	1072	1288
8:44:00	0.44	0.00	0.01	0.00	0.32	17.40	1319	818	1191	1250
8:48:00	0.44	0.00	0.01	0.00	0.00	17.40	1347	844	1220	1144
8:52:00	0.44	0.00	0.01	0.00	0.00	17.40	1400	728	1240	1208
8:56:00	0.44	0.00	0.01	0.00	0.00	17.40	1252	983	1240	1205
9:00:00	0.44	0.00	0.01	0.00	0.00	17.40	1358	1008	1240	1172
9:04:00	0.44	0.27	4.73	0.00	0.00	17.40	1363	1095	1212	1225
9:08:00	0.44	0.33	7.23	0.00	0.33	20.10	1406	1095	1303	1251
9:12:00	0.44	0.91	15.29	0.00	0.34	30.20	1563	1155	1273	1251
9:16:00	0.44	0.86	16.34	0.00	0.34	44.40	1709	1155	1325	1279
9:20:00	0.44	0.79	17.27	0.00	0.34	66.50	1739	1155	1355	1306
9:24:00	0.44	0.74	15.97	0.00	0.34	70.30	1768	1155	1381	1335
9:28:00	0.44	0.75	15.39	0.00	0.32	97.50	1799	1184	1407	1367
9:32:00	0.44	0.73	15.39	0.00	0.34	108.90	1799	1184	1407	1367
9:36:00	0.44	0.76	15.39	0.00	0.32	116.20	1825	1184	1407	1367
9:40:00	0.44	0.72	15.12	0.00	0.34	125.10	1825	1184	1433	1392
9:44:00	0.44	0.73	14.81	0.00	0.32	131.00	1799	1184	1433	1392
9:48:00	0.40	0.80	14.51	0.00	0.34	139.50	1799	1214	1433	1392
9:52:00	0.44	0.78	14.51	0.00	0.32	146.00	1799	1214	1433	1392
9:56:00	0.44	0.75	14.51	0.00	0.34	158.40	1766	1214	1433	1392
10:00:00	0.42	0.70	14.40	0.00	0.33	170.10	1759	1233	1432	1390

D103108.XLS

10/31/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	1076	1037	376	205	160.70	4.35	9.38	0	142	1
8:04:00	1076	1037	376	174	160.70	4.35	9.38	0	142	1
8:08:00	1076	1037	376	207	160.70	4.08	9.62	0	142	1
8:12:00	1076	1037	376	253	160.70	4.08	9.62	0	142	1
8:16:00	1076	1037	376	253	160.70	4.08	9.62	0	142	1
8:20:00	1076	1037	376	249	160.70	4.08	9.38	0	142	1
8:24:00	1076	1037	376	249	160.70	4.08	9.62	0	142	1
8:28:00	1076	1037	376	249	157.80	4.08	9.62	0	142	1
8:32:00	1018	1012	376	316	71.90	9.21	5.67	0	59	1
8:36:00	975	945	376	227	25.40	10.57	6.06	0	100	1
8:40:00	925	885	376	227	14.50	12.99	13.48	69	510	1
8:44:00	910	871	376	227	14.50	15.04	20.00	29	1000	1
8:48:00	910	871	376	227	14.50	14.24	16.56	32	593	1
8:52:00	884	856	376	257	14.50	13.82	14.02	10	869	1
8:56:00	884	856	376	257	14.50	18.02	4.54	10	305	1
9:00:00	884	856	376	257	14.50	18.02	5.62	10	349	1
9:04:00	855	824	376	257	14.50	1.78	11.53	42	98	1
9:08:00	841	808	376	257	14.50	5.03	9.09	17	78	1
9:12:00	860	808	376	257	14.50	8.47	7.52	5	59	1
9:16:00	873	836	376	257	34.30	2.22	10.60	3	98	1
9:20:00	910	863	376	257	59.60	4.27	9.38	3	110	1
9:24:00	926	877	376	227	67.10	4.32	9.38	3	110	1
9:28:00	939	892	376	227	93.00	3.79	9.67	3	110	1
9:32:00	956	907	376	241	104.30	3.86	9.72	3	110	1
9:36:00	970	921	376	241	111.60	3.91	9.67	3	110	1
9:40:00	970	921	376	241	121.00	4.62	9.43	3	110	1
9:44:00	986	934	376	241	127.00	4.13	9.77	3	110	1
9:48:00	999	948	376	241	135.80	3.61	9.77	3	110	1
9:52:00	999	966	376	241	143.40	4.03	9.77	3	110	1
9:56:00	1012	966	376	241	152.20	4.03	9.77	3	110	1
10:00:00	1012	980	365	250	166.70	3.86	9.77	0	110	0

D103110.XLS

10/31/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.42	0.70	14.40	0.00	0.33	170.10	1759	1233	1432	1390
10:04:00	0.42	0.62	14.40	0.00	0.32	173.80	1759	1233	1432	1390
10:08:00	0.42	0.73	14.80	0.00	0.32	169.80	1759	1233	1400	1390
10:12:00	0.42	0.88	15.10	0.00	0.33	169.80	1759	1230	1400	1390
10:16:00	0.42	0.93	14.66	0.00	0.33	170.70	1732	1230	1400	1390
10:20:00	0.42	0.94	14.66	0.00	0.34	173.40	1732	1230	1400	1390
10:24:00	0.42	0.80	14.91	0.00	0.32	176.10	1732	1230	1400	1390
10:28:00	0.42	0.85	15.25	0.00	0.34	179.50	1705	1230	1400	1390
10:32:00	0.42	0.85	15.25	0.00	0.32	182.30	1705	1230	1400	1365
10:36:00	0.42	0.85	15.25	0.00	0.32	184.90	1705	1230	1400	1365
10:40:00	0.42	0.87	15.53	0.00	0.33	184.90	1705	1230	1361	1365
10:44:00	0.43	0.76	15.79	0.00	0.32	179.10	1705	1230	1362	1365
10:48:00	0.43	0.72	15.79	0.00	0.33	176.40	1705	1183	1362	1365
10:52:00	0.38	0.70	15.79	0.00	0.32	173.50	1730	1214	1362	1365
10:56:00	0.37	0.68	15.53	0.00	0.35	173.50	1730	1241	1390	1365
11:00:00	0.40	0.66	15.83	0.00	0.32	170.90	1730	1241	1390	1365
11:04:00	0.38	0.65	15.52	0.00	0.33	170.90	1730	1241	1390	1365
11:08:00	0.38	0.65	15.52	0.00	0.32	170.90	1730	1241	1390	1365
11:12:00	0.35	0.71	15.52	0.00	0.32	170.90	1730	1241	1390	1365
11:16:00	0.43	0.80	15.78	0.00	0.35	170.90	1730	1241	1390	1365
11:20:00	0.36	0.78	15.47	0.00	0.32	170.90	1730	1241	1390	1365
11:24:00	0.37	0.83	15.77	0.00	0.33	170.90	1730	1241	1390	1365
11:28:00	0.37	0.83	15.41	0.00	0.34	170.90	1730	1241	1390	1365
11:32:00	0.37	0.84	15.41	0.00	0.32	170.90	1730	1241	1390	1365
11:36:00	0.42	0.82	15.37	0.00	0.32	170.90	1730	1241	1390	1365
11:40:00	0.42	0.86	15.37	0.00	0.32	170.90	1730	1241	1390	1365
11:44:00	0.37	0.92	15.42	0.00	0.33	170.90	1730	1241	1390	1365
11:48:00	0.38	0.79	15.42	0.00	0.34	170.90	1760	1241	1390	1365
11:52:00	0.38	0.76	15.42	0.00	0.33	170.90	1733	1241	1390	1365
11:56:00	0.36	0.78	15.42	0.00	0.33	170.90	1759	1241	1390	1365
12:00:00	0.41	0.81	15.40	0.00	0.32	172.30	1757	1255	1407	1376

D103110.XLS

10/31/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	1012	980	365	250	166.70	3.86	9.77	0	110	0
10:04:00	1012	980	365	250	170.20	3.86	9.77	0	110	0
10:08:00	1012	994	365	250	164.80	4.25	9.52	0	125	0
10:12:00	1012	994	365	250	164.80	4.59	9.23	0	125	0
10:16:00	1032	994	365	250	164.80	4.32	9.23	0	125	0
10:20:00	1032	994	365	398	168.00	4.32	9.48	0	125	0
10:24:00	1032	994	365	398	171.40	3.98	9.48	0	137	0
10:28:00	1046	1008	365	276	177.70	4.71	9.23	0	137	0
10:32:00	1046	1008	365	276	180.50	4.98	8.94	0	137	0
10:36:00	1046	1008	365	249	180.50	4.98	8.94	0	137	0
10:40:00	1046	1008	365	247	180.50	4.98	8.94	0	137	0
10:44:00	1046	1008	365	247	174.90	5.37	8.94	0	149	0
10:48:00	1033	1008	365	247	172.30	5.37	8.69	0	149	0
10:52:00	1033	1008	365	252	169.60	5.37	8.69	0	149	0
10:56:00	1046	1008	365	225	169.60	5.01	8.99	0	149	0
11:00:00	1046	1008	365	225	167.00	5.01	8.99	0	149	0
11:04:00	1046	1008	365	254	167.00	5.01	8.99	0	149	0
11:08:00	1046	1008	365	254	167.00	5.01	8.99	0	149	0
11:12:00	1060	1021	365	254	167.00	5.01	8.99	0	149	0
11:16:00	1060	1021	365	254	167.00	5.01	8.99	0	149	0
11:20:00	1060	1021	365	254	167.00	5.01	8.99	0	149	0
11:24:00	1046	1021	365	281	167.00	5.01	8.99	0	149	0
11:28:00	1046	1021	365	281	167.00	5.01	8.99	0	149	0
11:32:00	1046	1021	365	256	167.00	4.96	8.99	0	149	0
11:36:00	1046	1021	365	256	167.00	5.08	8.99	0	149	0
11:40:00	1046	1021	365	257	167.00	5.37	8.99	0	149	0
11:44:00	1060	1021	365	264	167.00	5.08	8.99	0	149	0
11:48:00	1060	1021	365	264	167.00	5.40	8.99	0	149	0
11:52:00	1060	1021	365	264	167.00	5.40	8.74	0	149	0
11:56:00	1060	1021	365	253	167.00	5.40	8.74	0	149	0
12:00:00	1069	1034	368	208	168.20	5.32	8.74	0	149	0

D103112.XLS

10/31/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.41	0.81	15.40	0.00	0.32	172.30	1757	1255	1407	1376
12:04:00	0.41	0.73	15.75	0.00	0.32	172.30	1757	1255	1407	1376
12:08:00	0.41	0.73	15.36	0.00	0.34	175.00	1757	1255	1407	1376
12:12:00	0.41	0.74	15.36	0.00	0.33	175.00	1731	1255	1407	1376
12:16:00	0.36	0.69	15.36	0.00	0.32	175.00	1757	1255	1407	1376
12:20:00	0.36	0.68	15.36	0.00	0.34	175.00	1757	1255	1407	1376
12:24:00	0.41	0.69	15.36	0.00	0.33	175.00	1731	1255	1407	1376
12:28:00	0.35	0.70	15.36	0.00	0.32	175.00	1731	1255	1398	1376
12:32:00	0.36	0.72	15.49	0.00	0.32	177.80	1731	1255	1398	1376
12:36:00	0.41	0.69	15.49	0.00	0.32	177.80	1731	1255	1398	1376
12:40:00	0.41	0.69	15.41	0.00	0.32	177.80	1731	1255	1398	1376
12:44:00	0.42	0.71	15.41	0.00	0.32	177.80	1731	1255	1398	1376
12:48:00	0.40	0.72	15.70	0.00	0.32	177.80	1731	1255	1398	1376
12:52:00	0.40	0.73	15.43	0.00	0.32	177.80	1731	1255	1398	1376
12:56:00	0.36	0.74	15.47	0.00	0.32	177.80	1731	1255	1398	1376
13:00:00	0.39	0.72	15.47	0.00	0.32	177.80	1731	1255	1398	1376
13:04:00	0.39	0.72	15.47	0.00	0.34	177.80	1709	1255	1382	1376
13:08:00	0.35	0.72	15.47	0.00	0.32	177.80	1737	1255	1382	1376
13:12:00	0.34	0.71	15.52	0.00	0.32	177.80	1734	1255	1382	1376
13:16:00	0.38	0.70	15.52	0.00	0.35	177.80	1734	1255	1382	1376
13:20:00	0.38	0.70	15.22	0.00	0.32	177.80	1734	1255	1382	1376
13:24:00	0.38	0.71	15.49	0.00	0.32	177.80	1734	1255	1373	1376
13:28:00	0.38	0.71	15.54	0.00	0.35	177.80	1748	1255	1373	1376
13:32:00	0.38	0.70	16.00	0.00	0.32	177.80	1718	1255	1373	1376
13:36:00	0.38	0.69	15.49	0.00	0.33	177.80	1718	1281	1373	1376
13:40:00	0.39	0.70	15.49	0.00	0.33	177.80	1748	1281	1373	1376
13:44:00	0.39	0.70	15.81	0.00	0.33	180.70	1745	1281	1373	1376
13:48:00	0.34	0.71	15.40	0.00	0.34	178.10	1742	1281	1371	1376
13:52:00	0.33	0.71	15.46	0.00	0.32	178.10	1742	1281	1371	1350
13:56:00	0.34	0.72	15.55	0.00	0.32	178.10	1742	1281	1371	1350
14:00:00	0.34	0.70	15.50	0.00	0.34	175.60	1752	1282	1376	1351

D103112.XLS

10/31/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	1069	1034	368	208	168.20	5.32	8.74	0	149	0
12:04:00	1069	1034	368	267	168.20	5.32	8.74	0	149	0
12:08:00	1069	1034	368	174	168.20	5.32	8.74	0	149	0
12:12:00	1069	1034	368	237	171.10	5.32	8.74	0	149	0
12:16:00	1069	1034	368	250	171.10	5.32	8.74	0	149	0
12:20:00	1069	1034	368	250	171.10	5.32	8.74	0	149	0
12:24:00	1069	1034	368	250	171.10	5.67	8.74	0	149	0
12:28:00	1069	1034	368	250	171.10	5.69	8.74	0	149	0
12:32:00	1069	1034	368	250	171.10	6.06	8.50	0	149	0
12:36:00	1069	1034	368	250	171.10	5.62	8.50	0	149	0
12:40:00	1083	1034	368	250	174.00	5.62	8.74	0	149	0
12:44:00	1083	1034	368	250	174.00	5.62	8.50	0	149	0
12:48:00	1083	1048	368	250	174.00	5.62	8.50	0	149	0
12:52:00	1083	1048	368	250	174.00	5.62	8.50	0	149	0
12:56:00	1083	1048	368	250	174.00	5.62	8.50	0	149	0
13:00:00	1083	1048	368	250	174.00	5.62	8.50	0	149	0
13:04:00	1083	1048	368	250	174.00	5.62	8.50	0	149	0
13:08:00	1083	1048	368	250	174.00	5.91	8.50	0	149	0
13:12:00	1083	1048	368	250	171.40	5.91	8.50	0	149	0
13:16:00	1083	1048	368	250	171.40	5.91	8.50	0	149	0
13:20:00	1068	1048	368	250	174.60	5.91	8.50	0	149	0
13:24:00	1068	1048	368	250	174.60	5.91	8.50	0	149	0
13:28:00	1068	1048	368	250	174.60	5.91	8.50	0	149	0
13:32:00	1068	1048	368	250	174.60	5.91	8.26	0	149	0
13:36:00	1068	1048	368	250	174.60	6.18	8.26	0	149	0
13:40:00	1082	1048	368	250	174.60	5.91	8.50	0	149	0
13:44:00	1082	1048	368	250	174.60	5.91	8.50	0	161	0
13:48:00	1082	1048	368	250	174.60	5.91	8.26	0	161	0
13:52:00	1082	1048	368	250	174.60	6.18	8.26	0	161	0
13:56:00	1082	1048	368	250	171.80	6.18	8.26	0	161	0
14:00:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3

D103114.XLS

10/31/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/mir.	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.34	0.70	15.50	0.00	0.34	175.60	1752	1282	1376	1351
14:04:00	0.34	0.72	15.50	0.00	0.32	175.60	1750	1282	1376	1351
14:08:00	0.39	0.73	15.45	0.00	0.32	175.60	1727	1282	1376	1351
14:12:00	0.39	0.74	15.51	0.00	0.34	175.60	1728	1282	1376	1351
14:16:00	0.35	0.80	15.51	0.00	0.32	175.60	1754	1282	1376	1351
14:20:00	0.35	0.79	15.86	0.00	0.32	175.60	1754	1282	1376	1351
14:24:00	0.35	0.88	15.47	0.00	0.32	175.60	1754	1282	1376	1351
14:28:00	0.35	1.03	15.47	0.00	0.33	175.60	1754	1282	1376	1351
14:32:00	0.39	1.03	15.50	0.00	0.35	175.60	1754	1282	1376	1351
14:36:00	0.38	0.90	15.71	0.00	0.32	175.60	1754	1282	1376	1351
14:40:00	0.38	0.86	15.42	0.00	0.32	175.60	1754	1282	1376	1351
14:44:00	0.33	0.82	15.49	0.00	0.35	175.60	1754	1282	1376	1351
14:48:00	0.35	0.8	15.54	0.00	0.32	175.60	1754	1282	1376	1351
14:52:00	0.35	0.77	15.88	0.00	0.32	172.90	1754	1255	1376	1351
14:56:00	0.35	0.70	15.56	0.00	0.32	172.90	1754	1281	1376	1351
15:00:00	0.35	0.70	15.48	0.00	0.32	172.90	1754	1281	1376	1351
15:04:00	0.35	0.64	15.60	0.00	0.35	172.90	1754	1281	1376	1351
15:08:00	0.35	0.64	15.60	0.00	0.33	172.90	1754	1281	1376	1351
15:12:00	0.39	0.65	15.60	0.00	0.33	172.90	1754	1281	1376	1351
15:16:00	0.35	0.66	15.60	0.00	0.33	172.90	1754	1281	1376	1351
15:20:00	0.34	0.66	15.44	0.00	0.33	172.90	1754	1281	1376	1351
15:24:00	0.34	0.67	15.44	0.00	0.34	172.90	1754	1281	1376	1351
15:28:00	0.33	0.67	15.52	0.00	0.32	172.90	1754	1281	1376	1351
15:32:00	0.33	0.68	15.53	0.00	0.33	172.90	1754	1281	1376	1351
15:36:00	0.35	0.68	15.53	0.00	0.33	169.40	1754	1281	1357	1351
15:40:00	0.40	0.69	15.89	0.00	0.33	166.80	1754	1281	1357	1351
15:44:00	0.36	0.71	15.49	0.00	0.34	166.80	1754	1281	1386	1351
15:48:00	0.40	0.73	15.49	0.00	0.33	166.80	1786	1281	1386	1351
15:52:00	0.40	0.81	15.86	0.00	0.33	166.80	1756	1281	1362	1351
15:56:00	0.40	0.85	15.52	0.00	0.32	166.80	1756	1281	1390	1351
16:00:00	0.39	0.80	15.51	0.00	0.33	164.70	1772	1289	1395	1358

D103114.XLS

10/31/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:04:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:08:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:12:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:16:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:20:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:24:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:28:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:32:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:36:00	1085	1048	370	250	170.90	6.13	8.26	0	164	3
14:40:00	1085	1048	370	250	170.90	5.84	8.26	0	164	3
14:44:00	1072	1048	370	250	170.90	5.79	8.26	0	164	3
14:48:00	1072	1048	370	250	170.90	5.84	8.26	0	164	3
14:52:00	1072	1048	370	250	170.90	5.84	8.26	0	164	3
14:56:00	1086	1048	370	250	168.30	5.84	8.50	0	164	3
15:00:00	1086	1048	370	250	168.30	5.84	8.50	0	176	3
15:04:00	1086	1048	370	250	168.30	5.84	8.50	0	176	3
15:08:00	1086	1048	370	250	168.30	5.84	8.50	0	176	3
15:12:00	1086	1048	370	250	168.30	5.84	8.50	0	176	3
15:16:00	1086	1048	370	250	168.30	5.84	8.50	0	176	3
15:20:00	1086	1048	370	250	168.30	5.84	8.50	0	176	3
15:24:00	1086	1062	370	250	168.30	5.84	8.50	0	176	3
15:28:00	1086	1062	370	250	168.30	5.84	8.50	0	176	3
15:32:00	1086	1062	370	250	168.30	5.84	8.50	0	176	3
15:36:00	1073	1062	370	250	164.90	5.84	8.50	0	176	3
15:40:00	1073	1062	370	250	162.30	5.84	8.50	0	176	3
15:44:00	1073	1062	370	250	162.30	5.84	8.50	0	176	3
15:48:00	1073	1062	370	250	162.30	5.84	8.50	0	176	3
15:52:00	1090	1062	370	250	162.30	5.84	8.50	0	176	3
15:56:00	1090	1062	370	250	159.70	5.84	8.50	0	176	3
16:00:00	1077	1060	384	250	160.30	5.52	8.60	0	183	0

D103116.XLS

10/31/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.39	0.80	15.51	0.00	0.33	164.70	1772	1289	1395	1358
16:04:00	0.39	0.78	15.51	0.00	0.34	164.70	1772	1289	1395	1358
16:08:00	0.40	0.76	15.77	0.00	0.33	167.60	1772	1289	1395	1358
16:12:00	0.40	0.71	15.47	0.00	0.35	167.60	1772	1289	1395	1358
16:16:00	0.40	0.64	15.47	0.00	0.33	167.60	1772	1289	1395	1358
16:20:00	0.40	0.66	15.55	0.00	0.33	167.60	1772	1289	1395	1358
16:24:00	0.40	0.66	15.55	0.00	0.32	167.60	1772	1289	1395	1358
16:28:00	0.40	0.68	15.55	0.00	0.32	170.70	1772	1289	1395	1358
16:32:00	0.40	0.71	15.55	0.00	0.32	170.70	1772	1289	1395	1358
16:36:00	0.40	0.78	15.55	0.00	0.32	170.70	1772	1289	1395	1358
16:40:00	0.40	0.86	15.55	0.00	0.34	170.70	1772	1289	1395	1358
16:44:00	0.40	0.81	15.55	0.00	0.32	170.70	1772	1289	1395	1358
16:48:00	0.40	0.75	15.83	0.00	0.34	170.70	1772	1289	1395	1358
16:52:00	0.40	0.64	15.38	0.00	0.32	170.70	1770	1289	1395	1358
16:56:00	0.40	0.66	15.38	0.00	0.34	173.90	1759	1289	1395	1358
17:00:00	0.40	0.67	15.47	0.00	0.32	173.90	1759	1289	1395	1358
17:04:00	0.40	0.70	15.47	0.00	0.32	173.90	1759	1289	1395	1358
17:08:00	0.40	0.73	15.47	0.00	0.32	173.90	1759	1289	1395	1358
17:12:00	0.40	0.77	15.45	0.00	0.32	173.90	1789	1289	1395	1358
17:16:00	0.40	0.87	15.45	0.00	0.32	173.90	1789	1289	1374	1358
17:20:00	0.40	0.87	15.60	0.00	0.32	173.90	1789	1289	1374	1358
17:24:00	0.40	0.82	15.60	0.00	0.34	173.90	1789	1289	1374	1358
17:28:00	0.40	0.79	15.60	0.00	0.33	173.90	1763	1289	1374	1358
17:32:00	0.40	0.75	15.34	0.00	0.33	173.90	1807	1289	1374	1358
17:36:00	0.40	0.65	15.34	0.00	0.33	173.90	1811	1289	1374	1358
17:40:00	0.40	0.65	15.33	0.00	0.34	177.80	1797	1289	1303	1358
17:44:00	0.40	0.00	14.79	2.46	0.33	172.80	1522	1289	1179	1358
17:48:00	0.40	0.65	14.49	2.46	0.34	175.70	1620	1250	1354	1333
17:52:00	0.40	0.74	15.01	2.46	0.33	178.90	1700	1250	1257	1333
17:56:00	0.40	0.79	16.08	3.04	0.34	178.90	1815	1284	1369	1333
18:00:00	0.38	0.82	16.57	4.08	0.32	179.50	1839	1301	1397	1371

D103116.XLS

10/31/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	1077	1060	384	250	160.30	5.52	8.60	0	183	0
16:04:00	1077	1060	384	250	160.30	5.47	8.60	0	183	0
16:08:00	1077	1060	384	250	163.00	5.47	8.60	0	183	0
16:12:00	1077	1060	384	250	163.00	5.47	8.60	0	183	0
16:16:00	1093	1060	384	250	163.00	5.47	8.60	0	183	0
16:20:00	1093	1060	384	250	163.00	5.47	8.60	0	183	0
16:24:00	1093	1060	384	250	165.70	5.47	8.60	0	183	0
16:28:00	1093	1060	384	250	165.70	5.47	8.60	0	183	0
16:32:00	1093	1060	384	250	165.70	5.47	8.60	0	183	0
16:36:00	1093	1060	384	250	165.70	5.47	8.60	0	183	0
16:40:00	1093	1060	384	250	165.70	5.47	8.60	0	183	0
16:44:00	1093	1060	384	250	165.70	5.47	8.60	0	195	0
16:48:00	1093	1060	384	250	165.70	5.47	8.60	0	195	0
16:52:00	1093	1060	384	250	165.70	5.47	8.60	0	195	0
16:56:00	1108	1073	384	250	168.90	5.47	8.60	0	195	0
17:00:00	1100	1073	384	250	168.90	5.54	8.60	0	195	0
17:04:00	1092	1073	384	250	168.90	5.57	8.60	0	195	0
17:08:00	1092	1073	384	250	168.90	5.57	8.60	0	195	0
17:12:00	1092	1073	384	250	168.90	5.57	8.60	0	195	0
17:16:00	1079	1073	384	250	168.90	5.30	8.60	0	195	0
17:20:00	1094	1073	384	250	168.90	5.28	8.60	0	195	0
17:24:00	1094	1073	384	250	168.90	5.30	8.60	0	208	0
17:28:00	1094	1073	384	250	168.90	5.23	8.60	0	208	0
17:32:00	1094	1073	384	250	168.90	15.33	2.35	0	44	0
17:36:00	1094	1073	384	250	168.90	5.40	8.79	0	195	0
17:40:00	1113	1073	384	250	173.60	5.08	8.79	0	208	0
17:44:00	1113	1073	384	212	169.00	5.45	8.79	0	183	0
17:48:00	1093	1056	384	225	169.00	8.62	7.33	0	76	0
17:52:00	1093	1056	384	225	173.00	4.86	9.18	0	115	0
17:56:00	1093	1056	384	225	173.00	4.69	9.04	0	127	0
18:00:00	1104	1069	397	225	174.30	5.67	8.50	0	154	3

D103118.XLS

10/31/91 18:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
18:00:00	0.38	0.82	16.57	4.08	0.32	179.50	1839	1301	1397	1371
18:04:00	0.38	0.83	16.25	4.08	0.32	179.50	1839	1301	1402	1371
18:08:00	0.38	0.86	15.86	3.90	0.32	179.50	1839	1301	1402	1398
18:12:00	0.43	0.91	15.81	3.90	0.32	179.50	1865	1301	1432	1398
18:16:00	0.43	0.99	15.77	4.23	0.33	183.50	1834	1301	1432	1398
18:20:00	0.39	0.96	16.37	4.45	0.33	173.20	1802	1294	1217	1398
18:24:00	0.43	0.98	15.05	7.23	0.34	178.50	1758	1321	1438	1398
18:28:00	0.43	0.96	16.19	5.78	0.33	175.60	1758	1290	1358	1398
18:32:00	0.44	0.95	16.99	5.10	0.34	172.20	1758	1290	1415	1398
18:36:00	0.38	0.92	16.68	4.71	0.32	172.20	1784	1290	1346	1398
18:40:00	0.38	0.92	17.09	4.71	0.33	172.20	1784	1290	1390	1398
18:44:00	0.43	0.92	17.39	4.71	0.33	172.20	1784	1290	1424	1398
18:48:00	0.39	0.97	17.64	4.89	0.33	169.60	1784	1290	1424	1398
18:52:00	0.44	0.95	17.50	4.89	0.32	169.60	1784	1290	1424	1398
18:56:00	0.44	0.92	16.89	4.71	0.32	169.60	1784	1290	1362	1398
19:00:00	0.38	0.93	16.57	4.71	0.34	172.50	1742	1290	1427	1398
19:04:00	0.42	0.96	17.36	4.71	0.34	175.30	1701	1290	1401	1371
19:08:00	0.42	0.94	16.90	4.71	0.34	175.30	1701	1290	1375	1371
19:12:00	0.42	0.95	17.48	4.71	0.33	175.30	1701	1290	1375	1371
19:16:00	0.42	0.95	17.48	4.71	0.34	172.60	1730	1290	1375	1371
19:20:00	0.42	0.95	17.64	4.71	0.33	172.60	1734	1248	1393	1371
19:24:00	0.37	0.96	17.64	4.88	0.33	172.60	1760	1281	1393	1371
19:28:00	0.37	0.95	16.81	4.88	0.32	172.60	1760	1281	1391	1371
19:32:00	0.43	0.96	17.54	4.88	0.33	172.60	1790	1281	1417	1371
19:36:00	0.42	0.97	17.54	4.88	0.33	172.60	1790	1281	1417	1371
19:40:00	0.38	0.96	16.85	4.88	0.32	172.60	1790	1281	1391	1398
19:44:00	0.38	1.00	17.38	4.88	0.32	172.60	1790	1281	1439	1398
19:48:00	0.43	1.00	16.69	4.73	0.32	172.60	1790	1281	1375	1398
19:52:00	0.39	1.05	17.68	4.73	0.33	172.60	1790	1306	1435	1398
19:56:00	0.39	1.03	16.92	4.73	0.32	170.00	1790	1278	1416	1398
20:00:00	0.39	1.06	17.54	4.82	0.33	170.10	1810	1305	1449	1417

D103118.XLS

10/31/91 18:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
18:00:00	1104	1069	397	225	174.30	5.67	8.50	0	154	3
18:04:00	1104	1069	397	225	174.30	6.06	8.50	0	154	3
18:08:00	1104	1069	397	-41	174.30	5.79	8.50	0	154	3
18:12:00	1104	1083	397	-41	174.30	6.11	8.26	0	154	3
18:16:00	1118	1083	397	-41	178.00	6.67	7.82	0	154	3
18:20:00	1024	1083	397	-41	165.80	7.47	7.33	0	149	3
18:24:00	1009	1070	397	-41	170.70	9.57	6.50	0	105	3
18:28:00	1009	1070	397	-41	170.70	9.21	6.50	0	137	3
18:32:00	991	1054	397	-41	164.10	8.82	6.74	0	154	3
18:36:00	991	1054	397	-41	164.10	8.50	7.03	0	154	3
18:40:00	991	1054	397	-41	164.10	8.50	7.03	0	154	3
18:44:00	991	1054	397	-41	164.10	8.50	7.03	0	154	3
18:48:00	991	1054	397	-41	164.10	8.23	7.03	0	166	3
18:52:00	991	1054	397	-41	164.10	8.23	7.03	0	166	3
18:56:00	991	1054	397	-41	164.10	8.23	7.03	0	166	3
19:00:00	991	1054	397	-41	167.00	8.23	7.03	0	166	3
19:04:00	1010	1054	397	-41	167.00	8.23	7.28	0	166	3
19:08:00	1039	1054	397	-41	167.00	7.96	7.28	0	166	3
19:12:00	1039	1054	397	-41	167.00	7.96	7.28	0	166	3
19:16:00	1053	1054	397	-41	167.00	7.96	7.28	0	166	3
19:20:00	1066	1054	397	-41	167.00	8.23	7.28	0	166	3
19:24:00	1066	1054	397	-41	167.00	8.23	7.28	0	166	3
19:28:00	1066	1054	397	-41	167.00	8.23	7.28	0	166	3
19:32:00	1080	1054	397	-41	167.00	8.23	7.28	0	166	3
19:36:00	1080	1054	397	-41	167.00	8.23	7.28	0	166	3
19:40:00	1080	1054	397	-41	164.40	8.23	7.28	0	166	3
19:44:00	1080	1054	397	-41	164.40	8.23	7.28	0	166	3
19:48:00	1080	1054	397	-41	164.40	8.23	7.28	0	166	3
19:52:00	1080	1054	397	-41	164.40	8.23	7.28	0	166	3
19:56:00	1080	1054	397	-41	164.40	8.23	7.28	0	166	3
20:00:00	1088	1060	411	-41	163.80	8.11	7.13	0	166	0

[redacted]

D103120.XLS

10/31/91 20:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
20:00:00	0.39	1.06	17.54	4.82	0.33	170.10	1810	1305	1449	1417
20:04:00	0.39	1.00	17.54	4.82	0.33	170.10	1810	1306	1449	1417
20:08:00	0 39	0.93	17.12	4.82	0.33	170.10	1810	1306	1424	1417
20:12:00	0.43	0.90	17.43	4.82	0.33	170.10	1810	1306	1452	1417
20:16:00	0.43	0.87	17.06	4.82	0.33	170.10	1810	1306	1400	1417
20:20:00	0.38	0.87	17.35	4.82	0.32	170.10	1810	1306	1457	1417
20:24:00	0.43	0.82	16.71	4.66	0.34	170.10	1729	1306	1429	1417
20:28:00	0.43	0.84	17.48	4.66	0.32	173.20	1694	1306	1429	1417
20:32:00	0.43	0.85	17.34	4.66	0.34	173.20	1694	1306	1401	1391
20:36:00	0.39	0.82	17.34	4.66	0.33	173.20	1694	1306	1401	1391
20:40:00	0.43	0.82	16.67	4.66	0.34	173.20	1699	1306	1358	1391
20:44:00	0.43	0.82	17.33	4.66	0.32	173.20	1698	1275	1390	1391
20:48:00	0.38	0.85	16.88	4.66	0.32	176.00	1696	1275	1390	1391
20:52:00	0.38	0.84	17.26	4.66	0.33	176.00	1694	1275	1392	1391
20:56:00	0.43	0.85	17.27	4.66	0.33	176.00	1693	1275	1394	1391
21:00:00	0.38	0.86	16.66	4.66	0.33	176.00	1691	1275	1364	1365
21:04:00	0.38	0.84	17.07	4.66	0.33	176.00	1692	1275	1390	1365
21:08:00	0.43	0.85	16.64	4.66	0.33	176.00	1693	1275	1355	1365
21:12:00	0.39	0.85	16.84	4.66	0.32	176.00	1693	1275	1380	1365
21:16:00	0.39	0.85	16.49	4.66	0.33	176.00	1693	1275	1351	1365
21:20:00	0.39	0.84	17.20	4.66	0.33	176.00	1698	1275	1378	1365
21:24:00	0.39	0.84	16.38	4.66	0.34	176.00	1698	1275	1378	1365
21:28:00	0.39	0.85	17.07	4.81	0.34	176.00	1699	1275	1377	1365
21:32:00	0.39	0.82	17.07	4.81	0.34	176.00	1697	1275	1377	1365
21:36:00	0.39	0.81	16.80	4.81	0.32	176.00	1698	1275	1333	1365
21:40:00	0.39	0.81	16.75	4.65	0.34	176.00	1700	1275	1333	1365
21:44:00	0.39	0.81	17.29	4.80	0.32	176.00	1700	1275	1366	1365
21:48:00	0.39	0.82	17.29	4.80	0.33	176.00	1699	1275	1366	1365
21:52:00	0.39	0.82	16.73	4.64	0.32	176.00	1700	1275	1332	1365
21:56:00	0.39	0.82	17.17	4.81	0.32	176.00	1717	1301	1359	1365
22:00:00	0.39	0.82	17.06	4.74	0.32	172.60	1776	1295	1344	1363

D103120.XLS

10/31/91 20:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
20:00:00	1088	1060	411	-41	163.80	8.11	7.13	0	166	0
20:04:00	1088	1060	411	-41	163.80	8.11	7.13	0	166	0
20:08:00	1088	1060	411	-41	163.80	8.11	7.13	0	166	0
20:12:00	1088	1060	411	-41	163.80	8.11	7.13	0	166	0
20:16:00	1088	1060	411	-41	163.80	8.11	7.38	0	154	0
20:20:00	1088	1060	411	-41	163.80	8.11	7.13	0	166	0
20:24:00	1088	1060	411	-41	163.80	8.11	7.13	0	154	0
20:28:00	1088	1060	411	-41	166.70	8.18	7.13	0	166	0
20:32:00	1088	1060	411	-41	166.70	8.20	7.18	0	154	0
20:36:00	1101	1060	411	-41	166.70	8.16	7.18	0	166	0
20:40:00	1101	1060	411	-41	166.70	8.16	7.18	0	166	0
20:44:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
20:48:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
20:52:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
20:56:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:00:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:04:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:08:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:12:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:16:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:20:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:24:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:28:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:32:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:36:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:40:00	1101	1060	411	-41	169.30	8.16	7.18	0	166	0
21:44:00	1101	1060	411	-41	169.30	8.16	7.18	0	178	0
21:48:00	1101	1060	411	-41	169.30	8.16	7.18	0	178	0
21:52:00	1101	1060	411	-41	169.30	8.16	7.18	0	178	0
21:56:00	1101	1060	411	-41	169.30	8.16	7.18	0	178	0
22:00:00	1102	1068	413	-41	166.30	8.33	7.08	0	181	1

D103122.XLS

10/31/91 22:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
22:00:00	0.39	0.82	17.06	4.74	0.32	172.60	1776	1295	1344	1363
22:04:00	0.39	0.83	17.43	4.74	0.33	172.60	1793	1295	1383	1363
22:08:00	0.39	0.83	17.00	4.74	0.32	172.60	1801	1295	1383	1363
22:12:00	0.39	0.85	17.25	4.74	0.34	172.60	1772	1321	1410	1363
22:16:00	0.39	0.88	17.26	4.74	0.32	172.60	1815	1321	1414	1390
22:20:00	0.39	0.90	17.26	4.74	0.32	172.60	1815	1321	1414	1390
22:24:00	0.39	0.90	17.26	4.74	0.32	169.70	1815	1321	1420	1390
22:28:00	0.39	1.01	16.93	4.74	0.32	169.70	1815	1321	1408	1390
22:32:00	0.39	1.03	17.42	4.90	0.33	169.70	1815	1321	1425	1390
22:36:00	0.39	0.91	16.94	4.90	0.33	169.70	1815	1321	1425	1390
22:40:00	0.39	0.86	16.61	4.90	0.32	169.70	1815	1321	1390	1390
22:44:00	0.39	0.85	17.24	4.90	0.33	169.70	1815	1321	1420	1390
22:48:00	0.39	0.82	17.59	4.90	0.33	169.70	1815	1321	1420	1390
22:52:00	0.39	0.86	17.33	4.90	0.33	169.70	1815	1321	1420	1390
22:56:00	0.39	0.88	17.33	4.90	0.33	169.70	1815	1322	1420	1390
23:00:00	0.39	1.02	17.33	4.90	0.32	172.80	1738	1322	1447	1416
23:04:00	0.39	1.00	16.80	4.74	0.32	172.80	1710	1322	1405	1416
23:08:00	0.39	0.94	17.36	4.74	0.32	172.80	1684	1322	1402	1386
23:12:00	0.39	0.84	17.40	4.74	0.32	172.80	1674	1322	1402	1386
23:16:00	0.39	0.72	17.47	4.74	0.32	172.80	1688	1295	1389	1386
23:20:00	0.39	0.74	17.47	4.74	0.32	172.80	1688	1295	1389	1386
23:24:00	0.39	0.78	16.87	4.74	0.32	172.80	1688	1295	1339	1386
23:28:00	0.39	0.82	17.29	4.74	0.33	172.80	1721	1295	1385	1386
23:32:00	0.39	0.97	16.85	4.74	0.33	172.80	1717	1295	1385	1386
23:36:00	0.39	0.99	17.53	4.74	0.33	172.80	1717	1295	1375	1386
23:40:00	0.39	0.92	17.53	4.74	0.44	172.80	1689	1295	1401	1386
23:44:00	0.39	0.75	17.77	4.74	0.45	172.80	1693	1295	1374	1386
23:48:00	0.39	0.74	16.68	4.74	0.46	175.60	1721	1295	1364	1386
23:52:00	0.39	0.79	17.45	4.74	0.34	175.60	1717	1295	1391	1386
23:56:00	0.39	0.89	17.16	4.74	0.33	175.60	1722	1295	1359	1386
0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D103122.XLS

10/31/91 22:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
22:00:00	1102	1068	413	-41	166.30	8.33	7.08	0	181	1
22:04:00	1102	1068	413	-41	166.30	8.35	7.08	0	181	1
22:08:00	1089	1068	413	-41	166.30	8.38	7.08	0	181	1
22:12:00	1089	1068	413	-41	166.30	8.33	7.08	0	181	1
22:16:00	1089	1068	413	-41	166.30	8.06	7.08	0	181	1
22:20:00	1089	1068	413	-41	166.30	8.06	7.08	0	181	1
22:24:00	1103	1068	413	-41	163.50	8.06	7.08	0	181	1
22:28:00	1103	1068	413	-41	163.50	8.06	7.33	0	181	1
22:32:00	1103	1068	413	-41	163.50	8.06	7.08	0	181	1
22:36:00	1103	1068	413	-41	163.50	8.06	7.08	0	181	1
22:40:00	1103	1081	413	-41	163.50	8.06	7.08	0	181	1
22:44:00	1103	1081	413	-41	163.50	8.33	7.03	0	181	1
22:48:00	1103	1081	413	-41	163.50	8.33	7.28	0	181	1
22:52:00	1117	1081	413	-41	163.50	8.33	7.03	0	181	1
22:56:00	1117	1081	413	-41	163.50	8.06	7.03	0	169	1
23:00:00	1117	1081	413	-41	166.40	8.06	7.13	0	169	1
23:04:00	1117	1081	413	-41	166.40	8.06	7.38	0	169	1
23:08:00	1117	1081	413	-41	166.40	8.06	7.38	0	169	1
23:12:00	1117	1081	413	-41	166.40	7.91	7.38	0	169	1
23:16:00	1117	1081	413	-41	166.40	8.20	7.13	0	169	1
23:20:00	1117	1081	413	-41	166.40	8.20	7.13	0	169	1
23:24:00	1117	1081	413	-41	166.40	8.20	7.13	0	169	1
23:28:00	1117	1081	413	-41	166.40	8.35	7.08	0	169	1
23:32:00	1117	1081	413	-41	166.40	7.99	7.08	0	169	1
23:36:00	1117	1081	413	-41	166.40	7.99	7.13	0	166	1
23:40:00	1117	1081	413	-41	166.40	7.94	7.13	0	166	1
23:44:00	1117	1081	413	-41	166.40	8.03	7.13	0	166	1
23:48:00	1117	1081	413	-41	169.50	8.33	7.13	0	166	1
23:52:00	1117	1081	413	-41	169.50	8.35	7.13	0	178	1
23:56:00	1117	1081	413	-41	169.50	8.33	7.08	0	178	1
0:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

11/1/91 0:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
0:00:00	0.39	1.01	17.46	4.75	0.33	174.10	1704	1309	1394	1370
0:04:00	0.39	0.90	17.61	4.75	0.32	174.10	1704	1309	1394	1370
0:08:00	0.39	0.71	16.97	4.75	0.33	174.10	1704	1309	1358	1370
0:12:00	0.39	0.75	17.61	4.75	0.33	174.10	1704	1309	1394	1370
0:16:00	0.39	0.82	17.35	4.75	0.32	174.10	1704	1309	1394	1370
0:20:00	0.39	1.01	17.68	4.75	0.33	174.10	1704	1309	1394	1370
0:24:00	0.39	0.96	16.59	4.75	0.32	174.10	1704	1309	1351	1370
0:28:00	0.39	0.83	17.59	4.75	0.32	174.10	1704	1309	1382	1370
0:32:00	0.39	0.73	17.42	4.75	0.32	174.10	1704	1309	1381	1370
0:36:00	0.39	0.79	17.73	4.75	0.32	170.60	1704	1309	1351	1370
0:40:00	0.39	0.88	17.24	4.75	0.32	170.60	1713	1309	1326	1370
0:44:00	0.39	1.00	17.61	4.75	0.33	167.60	1685	1309	1384	1370
0:48:00	0.39	0.89	17.24	4.75	0.32	170.70	1684	1309	1384	1370
0:52:00	0.39	0.73	17.44	4.75	0.32	170.70	1693	1309	1304	1370
0:56:00	0.39	0.77	17.44	4.75	0.32	168.10	1693	1309	1381	1370
1:00:00	0.39	0.86	17.28	4.75	0.32	168.10	1724	1309	1381	1370
1:04:00	0.39	1.02	16.89	4.75	0.32	171.00	1716	1309	1381	1370
1:08:00	0.39	0.92	17.31	4.75	0.32	171.00	1716	1309	1381	1370
1:12:00	0.39	0.77	16.85	4.75	0.32	171.00	1691	1309	1345	1370
1:16:00	0.39	0.74	17.48	4.75	0.33	171.00	1700	1309	1377	1370
1:20:00	0.39	0.78	16.91	4.75	0.33	171.00	1700	1309	1342	1370
1:24:00	0.39	0.87	17.18	4.75	0.33	171.00	1731	1309	1370	1370
1:28:00	0.39	1.00	17.01	4.75	0.32	171.00	1697	1309	1370	1370
1:32:00	0.39	0.89	17.71	4.75	0.33	171.00	1685	1309	1370	1370
1:36:00	0.39	0.71	17.38	4.75	0.32	171.00	1696	1309	1370	1370
1:40:00	0.39	0.75	17.66	4.75	0.34	171.00	1696	1309	1370	1370
1:44:00	0.39	0.81	17.31	4.75	0.33	171.00	1730	1309	1370	1370
1:48:00	0.39	0.94	17.31	4.75	0.32	171.00	1723	1309	1370	1370
1:52:00	0.39	0.97	16.85	4.75	0.32	171.00	1723	1309	1370	1370
1:56:00	0.39	0.84	17.77	4.75	0.32	171.00	1687	1309	1370	1370
2:00:00	0.40	0.72	16.98	4.73	0.33	171.60	1703	1314	1349	1364

D110100.XLS

11/1/91 0:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
0:00:00	1117	1082	423	-41	167.90	8.08	7.18	0	183	0
0:04:00	1117	1082	423	-41	167.90	8.08	7.18	0	183	0
0:08:00	1117	1082	423	-41	167.90	8.01	7.18	0	183	0
0:12:00	1117	1082	423	-41	167.90	8.01	7.18	0	183	0
0:16:00	1117	1082	423	-41	167.90	8.35	7.18	0	183	0
0:20:00	1117	1082	423	-41	167.90	8.23	7.18	0	183	0
0:24:00	1117	1082	423	-41	167.90	7.94	7.18	0	183	0
0:28:00	1117	1082	423	-41	167.90	7.86	7.43	0	183	0
0:32:00	1117	1082	423	-41	167.90	7.96	7.38	0	183	0
0:36:00	1117	1082	423	-41	164.20	8.38	7.13	0	183	0
0:40:00	1117	1082	423	-41	164.20	8.38	7.03	0	164	0
0:44:00	1117	1082	423	-41	161.10	8.03	7.33	0	164	0
0:48:00	1117	1082	423	-41	164.10	7.86	7.33	0	164	0
0:52:00	1117	1082	423	-41	164.10	7.96	7.33	0	164	0
0:56:00	1117	1082	423	-41	161.40	8.33	7.33	0	164	0
1:00:00	1117	1082	423	-41	161.40	8.35	7.08	0	164	0
1:04:00	1117	1082	423	-41	164.50	8.25	7.18	0	149	0
1:08:00	1117	1082	423	-41	164.50	7.84	7.18	0	149	0
1:12:00	1117	1082	423	-41	164.50	7.89	7.43	0	149	0
1:16:00	1117	1082	423	-41	164.50	8.20	7.33	0	149	0
1:20:00	1117	1082	423	-41	164.50	8.33	7.33	0	149	0
1:24:00	1117	1082	423	-41	164.50	8.28	7.08	0	149	0
1:28:00	1117	1082	423	-41	164.50	7.99	7.13	0	149	0
1:32:00	1117	1082	423	-41	164.50	7.89	7.13	0	149	0
1:36:00	1117	1082	423	-41	164.50	7.99	7.38	0	149	0
1:40:00	1117	1082	423	-41	164.50	7.99	7.33	0	149	0
1:44:00	1117	1082	423	-41	164.50	8.35	7.33	0	149	0
1:48:00	1117	1082	423	-41	164.50	8.25	7.08	0	149	0
1:52:00	1117	1082	423	-41	164.50	8.25	7.33	0	149	0
1:56:00	1117	1082	423	-41	164.50	7.94	7.33	0	149	0
2:00:00	1121	1086	427	-41	165.10	8.11	7.33	0	147	0

D110102.XLS

11/1/91 2:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
2:00:00	0.40	0.72	16.98	4.73	0.33	171.60	1703	1314	1349	1364
2:04:00	0.40	0.78	17.41	4.73	0.32	171.60	1703	1314	1383	1364
2:08:00	0.35	0.86	17.38	4.73	0.32	171.60	1730	1314	1383	1364
2:12:00	0.39	0.98	17.06	4.73	0.33	171.60	1695	1314	1383	1364
2:16:00	0.39	0.85	17.71	4.73	0.32	171.60	1695	1314	1382	1364
2:20:00	0.39	0.72	17.02	4.73	0.33	171.60	1715	1314	1348	1364
2:24:00	0.39	0.77	17.33	4.73	0.32	171.60	1715	1314	1377	1364
2:28:00	0.39	0.83	17.64	4.73	0.32	171.60	1722	1314	1377	1364
2:32:00	0.39	1.01	17.45	4.73	0.32	171.60	1694	1314	1377	1364
2:36:00	0.39	0.94	17.12	4.73	0.32	171.60	1694	1314	1377	1364
2:40:00	0.39	0.85	17.58	4.73	0.32	171.60	1683	1314	1377	1364
2:44:00	0.39	0.71	16.67	4.73	0.32	171.60	1692	1314	1320	1364
2:48:00	0.39	0.75	17.78	4.73	0.33	171.60	1692	1314	1379	1364
2:52:00	0.39	0.81	17.00	4.73	0.32	168.40	1721	1314	1241	1364
2:56:00	0.39	0.89	17.59	4.73	0.33	165.30	1716	1314	1376	1364
3:00:00	0.39	0.97	17.59	4.89	0.32	165.30	1716	1314	1376	1364
3:04:00	0.35	0.85	16.68	4.89	0.33	169.80	1716	1314	1376	1364
3:08:00	0.39	0.72	17.13	4.67	0.32	177.00	1709	1314	1342	1364
3:12:00	0.39	0.77	17.75	4.85	0.34	169.10	1709	1314	1205	1364
3:16:00	0.39	0.85	17.75	5.00	0.32	163.10	1709	1314	1335	1364
3:20:00	0.39	0.98	17.75	5.00	0.34	163.10	1709	1314	1373	1364
3:24:00	0.39	0.88	16.94	4.81	0.32	163.10	1709	1314	1373	1364
3:28:00	0.39	0.81	17.00	4.81	0.34	163.10	1709	1314	1373	1364
3:32:00	0.40	0.73	17.26	4.81	0.33	163.10	1709	1314	1373	1364
3:36:00	0.35	0.78	17.10	4.81	0.33	163.10	1709	1314	1348	1364
3:40:00	0.35	0.85	17.18	4.81	0.32	163.10	1709	1314	1348	1364
3:44:00	0.35	0.97	17.55	4.81	0.33	163.10	1709	1314	1348	1364
3:48:00	0.39	0.91	17.45	4.81	0.33	163.10	1709	1314	1348	1338
3:52:00	0.39	0.85	17.45	4.97	0.34	163.10	1709	1314	1348	1338
3:56:00	0.35	0.83	17.50	4.97	0.32	163.10	1709	1314	1348	1338
4:00:00	0.38	0.73	17.02	4.85	0.33	164.40	1694	1297	1348	1337

D110102.XLS

11/1/91 2:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
2:00:00	1121	1086	427	-41	165.10	8.11	7.33	0	147	0
2:04:00	1121	1086	427	-41	165.10	8.11	7.33	0	147	0
2:08:00	1104	1086	427	-41	165.10	8.35	7.08	0	159	0
2:12:00	1104	1086	427	-41	165.10	8.25	7.33	0	159	0
2:16:00	1104	1086	427	-41	165.10	7.91	7.33	0	159	0
2:20:00	1104	1086	427	-41	165.10	8.30	7.38	0	147	0
2:24:00	1104	1086	427	-41	165.10	8.30	7.33	0	147	0
2:28:00	1104	1086	427	-41	165.10	8.40	7.08	0	159	0
2:32:00	1104	1086	427	-41	165.10	8.03	7.08	0	159	0
2:36:00	1104	1086	427	-41	165.10	8.03	7.33	0	147	0
2:40:00	1104	1086	427	-41	165.10	7.94	7.33	0	147	0
2:44:00	1091	1086	427	-41	165.10	8.03	7.38	0	159	0
2:48:00	1091	1086	427	-41	165.10	8.03	7.33	0	159	0
2:52:00	1108	1086	427	-41	162.00	8.40	7.33	0	159	0
2:56:00	1108	1086	427	-41	158.90	8.42	7.03	0	159	0
3:00:00	1108	1086	427	-41	158.90	8.11	7.28	0	159	0
3:04:00	1079	1086	427	-41	166.90	7.96	7.28	0	159	0
3:08:00	1041	1086	427	-41	170.20	8.13	7.28	0	147	0
3:12:00	1014	1086	427	-41	163.20	8.13	7.28	0	147	0
3:16:00	1014	1069	427	-41	156.70	8.60	7.03	0	161	0
3:20:00	1014	1069	427	-41	156.70	8.25	7.03	0	161	0
3:24:00	1000	1069	427	-41	156.70	8.25	7.03	0	161	0
3:28:00	1000	1069	427	-41	156.70	8.25	7.28	0	149	0
3:32:00	1000	1069	427	-41	156.70	8.25	7.28	0	149	0
3:36:00	1000	1069	427	-41	156.70	8.25	7.28	0	149	0
3:40:00	1000	1056	427	-41	156.70	8.40	7.03	0	149	0
3:44:00	1000	1056	427	-41	156.70	8.35	7.03	0	149	0
3:48:00	1000	1056	427	-41	156.70	8.35	7.28	0	149	0
3:52:00	1000	1056	427	-41	156.70	8.03	7.28	0	149	0
3:56:00	1000	1056	427	-41	156.70	8.11	7.03	0	149	0
4:00:00	994	1053	407	-41	157.50	8.11	7.33	0	147	1

D110104.XLS

11/1/91 4:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
4:00:00	0.38	0.73	17.02	4.85	0.33	164.40	1694	1297	1348	1337
4:04:00	0.38	0.74	17.51	4.85	0.32	164.40	1694	1297	1348	1337
4:08:00	0.38	0.78	17.34	4.85	0.32	164.40	1694	1297	1348	1337
4:12:00	0.38	0.81	17.04	4.85	0.32	164.40	1721	1297	1348	1337
4:16:00	0.38	0.84	17.08	4.85	0.32	164.40	1719	1297	1348	1337
4:20:00	0.38	0.96	17.30	4.85	0.32	164.40	1693	1297	1348	1337
4:24:00	0.38	0.95	17.10	4.85	0.32	164.40	1693	1297	1348	1337
4:28:00	0.38	0.89	17.10	4.85	0.32	164.40	1693	1297	1348	1337
4:32:00	0.38	0.79	17.36	4.85	0.32	164.40	1685	1297	1348	1337
4:36:00	0.33	0.73	17.36	4.85	0.34	164.40	1694	1297	1348	1337
4:40:00	0.33	0.77	16.89	4.85	0.32	164.40	1694	1297	1348	1337
4:44:00	0.39	0.83	17.31	4.85	0.33	164.40	1722	1297	1348	1337
4:48:00	0.33	0.90	16.97	4.85	0.32	164.40	1690	1297	1348	1337
4:52:00	0.39	0.94	17.26	4.85	0.34	164.40	1690	1297	1348	1337
4:56:00	0.38	0.85	16.94	4.85	0.34	164.40	1690	1297	1348	1337
5:00:00	0.38	0.72	17.70	4.85	0.34	164.40	1689	1297	1348	1337
5:04:00	0.38	0.75	16.94	4.85	0.32	167.50	1689	1297	1348	1337
5:08:00	0.33	0.80	17.32	4.85	0.33	167.50	1689	1297	1295	1337
5:12:00	0.33	0.87	17.64	4.85	0.33	164.90	1689	1297	1344	1337
5:16:00	0.39	0.95	17.41	4.85	0.32	164.90	1689	1297	1344	1337
5:20:00	0.38	0.86	17.35	4.85	0.32	167.90	1689	1297	1344	1337
5:24:00	0.32	0.80	17.46	4.85	0.32	167.90	1685	1297	1344	1337
5:28:00	0.32	0.73	17.19	4.85	0.34	165.20	1690	1297	1336	1337
5:32:00	0.32	0.76	17.68	4.85	0.32	165.20	1690	1297	1336	1337
5:36:00	0.32	0.83	16.94	4.85	0.34	167.90	1717	1297	1336	1337
5:40:00	0.37	0.00	17.23	4.85	0.32	163.80	1361	1197	1182	1306
5:44:00	0.37	0.00	6.51	0.00	0.33	92.30	1261	956	940	1280
5:48:00	0.32	0.00	0.01	0.00	0.32	39.60	1261	897	954	1253
5:52:00	0.32	0.00	0.01	0.00	0.32	23.20	1256	823	1048	1253
5:56:00	0.32	0.00	0.01	0.00	0.32	19.50	1224	853	1134	1253
6:00:00	0.37	0.00	0.02	0.00	0.32	17.20	1257	884	1178	1197

D110104.XLS

11/1/91 4:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
4:00:00	994	1053	407	-41	157.50	8.11	7.33	0	147	1
4:04:00	994	1053	407	-41	157.50	8.11	7.08	0	159	1
4:08:00	994	1053	407	-41	157.50	8.38	7.08	0	159	1
4:12:00	994	1053	407	-41	157.50	8.40	7.08	0	159	1
4:16:00	994	1053	407	-41	157.50	8.40	7.08	0	159	1
4:20:00	994	1053	407	-41	157.50	8.08	7.08	0	159	1
4:24:00	994	1053	407	-41	157.50	8.08	7.33	0	159	1
4:28:00	994	1053	407	-41	157.50	8.01	7.33	0	159	1
4:32:00	994	1053	407	-41	157.50	8.01	7.33	0	159	1
4:36:00	994	1053	407	-41	157.50	8.08	7.28	0	147	1
4:40:00	977	1053	407	-41	157.50	8.08	7.28	0	147	1
4:44:00	977	1053	407	-41	157.50	8.45	7.28	0	159	1
4:48:00	977	1053	407	-41	157.50	8.38	7.03	0	159	1
4:52:00	977	1053	407	-41	157.50	8.38	7.13	0	154	1
4:56:00	977	1053	407	-41	157.50	8.01	7.13	0	154	1
5:00:00	977	1053	407	-41	157.50	8.03	7.38	0	154	1
5:04:00	977	1053	407	-41	160.40	8.03	7.13	0	154	1
5:08:00	977	1053	407	-41	160.40	8.33	7.13	0	154	1
5:12:00	977	1053	407	-41	160.40	8.35	7.13	0	154	1
5:16:00	977	1053	407	-41	157.60	8.35	7.13	0	154	1
5:20:00	977	1053	407	-41	160.30	8.08	7.13	0	154	1
5:24:00	977	1053	407	-41	160.30	8.08	7.43	0	154	1
5:28:00	977	1053	407	-41	160.30	8.08	7.13	0	154	1
5:32:00	977	1053	407	-41	160.30	8.42	7.13	0	154	1
5:36:00	977	1053	407	-41	160.30	8.42	7.13	0	154	1
5:40:00	977	1040	381	-41	157.60	8.38	6.69	0	154	1
5:44:00	895	1008	381	-41	88.60	14.02	3.32	0	37	1
5:48:00	830	974	381	-41	36.80	11.75	4.93	0	66	1
5:52:00	783	941	381	-41	20.50	11.70	8.40	0	213	1
5:56:00	753	907	381	-41	16.70	15.53	9.13	0	393	1
6:00:00	744	896	354	-41	14.40	17.48	5.76	5	308	0

D110106.XLS

11/1/91 6:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
6:00:00	0.37	0.00	0.02	0.00	0.32	17.20	1257	884	1178	1197
6:04:00	0.32	0.00	0.02	0.00	0.34	17.20	1285	987	1178	1168
6:08:00	0.37	0.00	0.02	0.00	0.32	17.20	1285	987	1207	1168
6:12:00	0.31	0.00	0.02	0.00	0.34	17.20	1285	987	1207	1140
6:16:00	0.36	0.00	0.02	0.00	0.32	17.20	1285	987	1207	1140
6:20:00	0.34	0.00	0.02	0.00	0.34	17.20	1285	987	1207	1140
6:24:00	0.34	0.00	0.02	0.00	0.34	17.20	1255	983	1169	1140
6:28:00	0.36	0.00	0.02	0.00	0.34	17.20	1255	983	1169	1114
6:32:00	0.35	0.00	0.02	0.00	0.34	17.20	1255	983	1169	1114
6:36:00	0.35	0.00	0.02	0.00	0.35	17.20	1255	983	1169	1114
6:40:00	0.34	0.00	0.02	0.00	0.32	17.20	1255	983	1169	1083
6:44:00	0.30	0.00	0.02	0.00	0.33	17.20	1255	983	1169	1083
6:48:00	0.30	0.00	0.02	0.00	0.33	17.20	1255	983	1169	1083
6:52:00	0.32	0.00	0.02	0.00	0.22	17.20	1255	983	1169	1083
6:56:00	0.31	0.00	0.02	0.00	0.32	17.20	1255	983	1169	1055
7:00:00	0.32	0.00	0.02	0.00	0.00	17.20	1255	983	1169	1055
7:04:00	0.32	0.00	0.02	0.00	0.34	17.20	1229	983	1169	1055
7:08:00	0.32	0.00	0.02	0.00	0.32	17.20	1229	983	1169	1055
7:12:00	0.32	0.00	0.02	0.00	0.32	17.20	1229	983	1169	1029
7:16:00	0.32	0.00	0.02	0.00	0.32	17.20	1229	983	1169	1029
7:20:00	0.30	0.00	0.02	0.00	0.00	17.20	1203	983	1169	1029
7:24:00	0.35	0.00	0.02	0.00	0.33	17.20	1203	983	1169	1029
7:28:00	0.35	0.00	0.02	0.00	0.00	17.20	1203	983	1142	1029
7:32:00	0.29	0.00	0.02	0.00	0.31	17.20	1203	958	1142	1029
7:36:00	0.37	0.00	0.02	0.00	0.00	17.20	1203	958	1142	1029
7:40:00	0.33	0.00	0.02	0.00	0.00	17.20	1177	958	1142	1004
7:44:00	0.33	0.00	0.02	0.00	0.32	17.20	1177	958	1142	1004
7:48:00	0.33	0.00	0.02	0.00	0.00	17.20	1177	958	1142	1004
7:52:00	0.33	0.00	0.02	0.00	0.00	17.20	1177	958	1142	1004
7:56:00	0.33	0.00	0.02	0.00	0.32	17.20	1177	958	1142	1004
8:00:00	0.32	0.00	0.01	0.00	0.00	16.70	1150	936	1117	980

D110106.XLS

11/1/91 6:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
6:00:00	744	896	354	-41	14.40	17.48	5.76	5	308	0
6:04:00	744	896	354	-41	14.40	17.90	4.06	5	239	0
6:08:00	728	883	354	-41	14.40	18.19	3.52	5	200	0
6:12:00	728	868	354	-41	14.40	18.19	2.98	5	171	0
6:16:00	728	868	354	-41	14.40	18.46	2.69	5	137	0
6:20:00	707	855	327	-41	14.40	7.67	2.69	5	51	0
6:24:00	707	855	327	-41	14.40	7.67	2.69	5	10	0
6:28:00	707	842	327	-41	14.40	7.67	2.69	5	10	0
6:32:00	707	842	355	-41	14.40	7.67	2.69	5	10	0
6:36:00	707	829	355	-41	14.40	7.67	2.69	5	10	0
6:40:00	707	829	355	-41	14.40	7.67	2.69	5	10	0
6:44:00	726	829	355	-41	14.40	7.67	2.69	5	10	0
6:48:00	726	814	355	-41	14.40	7.67	2.69	5	10	0
6:52:00	726	814	355	-41	14.40	7.67	2.69	5	10	0
6:56:00	742	801	355	-41	14.40	7.67	2.69	5	10	0
7:00:00	742	801	355	-41	14.40	7.67	2.69	5	10	0
7:04:00	742	801	355	-41	14.40	7.67	2.69	5	10	0
7:08:00	742	788	355	-41	14.40	7.67	2.69	5	10	0
7:12:00	742	788	355	-41	14.40	7.67	2.69	5	10	0
7:16:00	742	788	355	-41	14.40	7.67	2.69	5	10	0
7:20:00	742	773	355	-41	14.40	7.67	2.69	5	10	0
7:24:00	742	773	355	-41	14.40	7.67	2.69	5	10	0
7:28:00	742	773	355	-41	14.40	7.67	2.69	5	10	0
7:32:00	742	773	355	-41	14.40	7.67	2.69	5	10	0
7:36:00	729	760	355	-41	14.40	7.67	2.69	5	10	0
7:40:00	729	760	355	-41	14.40	7.67	2.69	5	10	0
7:44:00	729	760	355	-41	14.40	7.67	2.69	5	10	0
7:48:00	715	760	355	-41	14.40	7.67	2.69	5	10	0
7:52:00	715	744	355	-41	14.40	7.67	2.69	5	10	0
7:56:00	697	744	355	-41	14.40	7.67	2.69	5	10	0
8:00:00	692	737	371	-41	14.20	7.64	2.54	0	0	3

D110108.XLS

11/1/91 8:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
8:00:00	0.32	0.00	0.01	0.00	0.00	16.70	1150	936	1117	980
8:04:00	0.32	0.00	0.01	0.00	0.00	16.70	1150	936	1117	980
8:08:00	0.30	0.00	0.01	0.00	0.00	16.70	1150	936	1117	980
8:12:00	0.35	0.00	0.01	0.00	0.00	16.70	1150	936	1117	980
8:16:00	0.29	0.00	0.01	0.00	0.31	16.70	1150	936	1117	980
8:20:00	0.35	0.00	0.01	0.00	0.00	16.70	1123	936	1117	980
8:24:00	0.30	0.00	0.01	0.00	0.00	16.70	1123	936	1117	980
8:28:00	0.30	0.00	0.01	0.00	0.00	16.70	1123	910	1117	952
8:32:00	0.30	0.00	0.01	0.00	0.00	16.70	1123	910	1090	952
8:36:00	0.30	0.00	0.01	0.00	0.00	16.70	1123	910	1090	952
8:40:00	0.30	0.00	0.01	0.00	0.00	16.70	1123	910	1090	914
8:44:00	0.36	0.00	0.01	0.00	0.00	16.70	1096	910	1090	914
8:48:00	0.33	0.00	0.01	0.00	0.36	16.70	1096	910	1090	978
8:52:00	0.32	0.00	0.01	0.00	0.38	16.70	1061	910	1090	978
8:56:00	0.32	0.00	2.36	0.00	0.36	16.70	990	910	1058	1006
9:00:00	0.28	0.00	0.01	0.00	0.38	16.70	990	880	1058	1006
9:04:00	0.28	0.33	7.19	0.00	0.37	16.70	990	915	1058	1006
9:08:00	0.35	0.48	11.52	0.00	0.38	26.20	1130	944	1058	1006
9:12:00	0.28	0.41	8.38	0.00	0.36	27.40	1210	944	1005	1041
9:16:00	0.32	0.70	14.82	0.00	0.37	35.60	1387	980	1105	1106
9:20:00	0.32	0.75	16.92	0.00	0.36	46.30	1515	1006	1228	1201
9:24:00	0.32	0.76	17.34	0.00	0.33	52.30	1577	1006	1228	1229
9:28:00	0.26	0.77	16.97	0.00	0.33	55.00	1657	1033	1322	1294
9:32:00	0.27	0.77	17.32	0.00	0.32	68.90	1735	1033	1353	1325
9:36:00	0.27	0.85	16.48	3.21	0.32	80.90	1729	1072	1353	1325
9:40:00	0.27	0.84	17.80	4.45	0.32	101.70	1807	1101	1379	1359
9:44:00	0.26	0.83	16.89	5.28	0.32	121.90	1771	1126	1379	1359
9:48:00	0.33	0.76	17.10	5.03	0.32	138.00	1711	1126	1379	1332
9:52:00	0.32	0.77	17.10	5.03	0.32	148.70	1711	1126	1348	1332
9:56:00	0.28	0.78	16.77	4.86	0.35	156.70	1711	1154	1348	1306
10:00:00	0.27	0.78	17.31	5.01	0.32	162.80	1720	1158	1351	1310

D110108.XLS

11/1/91 8:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
8:00:00	692	737	371	-41	14.20	7.64	2.54	0	0	3
8:04:00	692	737	371	-41	14.20	7.64	2.54	0	0	3
8:08:00	692	737	371	-41	14.20	7.64	2.54	0	0	3
8:12:00	692	737	371	-41	14.20	7.64	2.54	0	0	3
8:16:00	679	722	371	-41	14.20	7.64	2.54	0	0	3
8:20:00	679	722	371	-41	14.20	7.64	2.54	0	0	3
8:24:00	679	722	371	-41	14.20	7.64	2.54	0	0	3
8:28:00	679	722	371	-41	14.20	7.64	2.54	0	0	3
8:32:00	679	708	371	-41	14.20	7.64	2.54	0	0	3
8:36:00	679	708	371	-41	14.20	7.64	2.54	0	0	3
8:40:00	666	708	371	-41	14.20	7.64	2.54	0	0	3
8:44:00	666	708	371	-41	14.20	7.64	2.54	0	0	3
8:48:00	666	694	371	-41	14.20	7.64	2.54	0	0	3
8:52:00	666	694	371	-41	14.20	7.64	2.54	0	0	3
8:56:00	666	694	371	-41	14.20	7.64	2.54	0	0	3
9:00:00	666	694	371	-41	14.20	7.64	2.54	0	0	3
9:04:00	666	681	371	-41	14.20	7.64	2.54	0	0	3
9:08:00	669	695	371	-41	14.20	8.16	7.62	34	54	3
9:12:00	686	695	371	-41	14.20	8.23	7.13	5	54	3
9:16:00	699	708	371	-41	14.20	3.27	10.26	0	100	3
9:20:00	712	708	371	-41	34.20	3.42	10.16	0	117	3
9:24:00	733	725	371	-41	40.20	3.66	10.06	0	117	3
9:28:00	751	741	371	-41	43.20	4.35	9.38	0	117	3
9:32:00	769	741	371	-41	61.00	4.35	9.38	0	132	3
9:36:00	806	779	371	-41	72.50	5.54	8.69	0	132	3
9:40:00	837	797	371	-41	93.90	5.67	8.69	0	132	3
9:44:00	864	832	371	-41	111.90	7.81	7.47	0	98	3
9:48:00	883	848	371	-41	129.90	8.30	7.18	0	98	3
9:52:00	898	862	371	-41	143.40	8.30	7.18	0	98	3
9:56:00	913	877	371	-41	150.90	7.99	7.43	0	110	3
10:00:00	932	903	373	-41	155.30	7.99	7.38	0	117	0

D110110.XLS

11/1/91 10:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
10:00:00	0.27	0.78	17.31	5.01	0.32	162.80	1720	1158	1351	1310
10:04:00	0.27	0.76	17.04	5.01	0.35	162.80	1720	1158	1351	1310
10:08:00	0.31	0.81	17.52	5.01	0.32	166.00	1655	1184	1351	1310
10:12:00	0.27	0.85	17.74	5.01	0.35	166.00	1647	1184	1314	1310
10:16:00	0.31	0.93	18.04	4.59	0.32	166.00	1662	1184	1314	1310
10:20:00	0.31	0.99	17.71	4.77	0.34	166.00	1705	1184	1314	1310
10:24:00	0.31	1.02	18.14	4.77	0.32	166.00	1705	1184	1348	1310
10:28:00	0.27	1.08	18.15	4.77	0.34	168.70	1732	1211	1348	1310
10:32:00	0.31	1.16	17.49	4.77	0.32	168.70	1732	1211	1348	1310
10:36:00	0.27	0.96	17.52	4.77	0.35	168.70	1759	1211	1348	1310
10:40:00	0.26	0.93	18.23	4.77	0.32	168.70	1757	1211	1348	1335
10:44:00	0.26	0.92	17.25	4.77	0.35	168.70	1757	1237	1348	1335
10:48:00	0.32	0.84	17.97	4.77	0.32	168.70	1757	1237	1380	1335
10:52:00	0.27	0.83	18.29	4.77	0.33	171.30	1757	1237	1350	1335
10:56:00	0.27	0.82	17.26	4.77	0.32	171.30	1729	1237	1350	1335
11:00:00	0.27	0.80	18.12	4.77	0.32	168.40	1729	1237	1350	1335
11:04:00	0.27	0.78	18.20	4.77	0.34	168.40	1729	1237	1350	1335
11:08:00	0.27	0.77	17.57	4.77	0.33	168.40	1736	1237	1350	1335
11:12:00	0.27	0.82	17.01	4.77	0.35	168.40	1738	1237	1350	1335
11:16:00	0.27	0.87	18.08	4.77	0.32	168.40	1737	1237	1350	1335
11:20:00	0.26	0.90	17.67	4.77	0.32	168.40	1742	1237	1352	1335
11:24:00	0.31	0.92	17.92	4.77	0.34	168.40	1750	1237	1352	1335
11:28:00	0.27	0.94	17.51	4.77	0.32	168.40	1778	1237	1352	1335
11:32:00	0.27	0.97	17.07	4.77	0.32	168.40	1778	1237	1352	1335
11:36:00	0.27	1.13	17.53	4.77	0.33	171.20	1778	1237	1352	1335
11:40:00	0.32	1.11	17.66	4.77	0.33	171.20	1778	1237	1352	1335
11:44:00	0.27	1.04	17.29	4.77	0.35	171.20	1778	1237	1352	1335
11:48:00	0.31	1.01	17.61	4.77	0.32	171.20	1778	1264	1352	1335
11:52:00	0.27	1.01	17.48	4.77	0.32	171.20	1778	1264	1352	1335
11:56:00	0.31	1.01	16.95	4.77	0.34	171.20	1807	1264	1352	1335
12:00:00	0.30	1.01	18.01	4.83	0.32	170.30	1808	1266	1370	1336

D110110.XLS

11/1/91 10:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
10:00:00	932	903	373	-41	155.30	7.99	7.38	0	117	0
10:04:00	932	903	373	-41	155.30	7.99	7.13	0	130	0
10:08:00	948	918	373	-41	157.90	8.30	7.13	0	130	0
10:12:00	948	918	373	-41	157.90	7.84	7.38	0	130	0
10:16:00	961	918	373	-41	157.90	7.18	7.77	0	142	0
10:20:00	961	933	373	-41	157.90	6.76	8.01	0	142	0
10:24:00	975	933	373	-41	160.70	6.76	8.01	0	130	0
10:28:00	975	949	373	-41	160.70	6.50	8.26	0	130	0
10:32:00	989	949	373	-41	160.70	6.50	8.06	0	130	0
10:36:00	989	949	373	-41	160.70	6.76	8.06	0	130	0
10:40:00	1002	962	373	-41	163.30	6.72	8.06	0	130	0
10:44:00	1002	962	373	-41	163.30	6.64	8.06	0	130	0
10:48:00	1002	975	343	-41	163.30	7.18	8.06	0	130	0
10:52:00	1016	975	343	-41	163.30	7.18	7.77	0	130	0
10:56:00	1016	975	343	-41	163.30	7.18	7.77	0	130	0
11:00:00	1016	975	369	-41	163.30	7.18	7.77	0	142	0
11:04:00	1016	975	369	-41	163.30	7.18	7.77	0	142	0
11:08:00	1016	975	369	-41	163.30	7.18	7.77	0	142	0
11:12:00	1016	975	369	-41	163.30	7.18	7.77	0	142	0
11:16:00	1016	988	369	-41	163.30	7.13	7.77	0	159	0
11:20:00	1029	988	369	-41	160.40	7.11	7.77	0	159	0
11:24:00	1029	988	369	-41	160.40	7.08	7.77	0	159	0
11:28:00	1029	988	369	-41	163.00	7.03	7.77	0	159	0
11:32:00	1029	1001	369	-41	163.00	7.06	7.77	0	159	0
11:36:00	1029	1001	369	-41	163.00	7.35	7.77	0	159	0
11:40:00	1044	1001	369	-41	163.00	7.08	7.77	0	159	0
11:44:00	1044	1001	369	-41	163.00	7.08	7.77	0	159	0
11:48:00	1044	1001	369	-41	163.00	7.08	7.77	0	171	0
11:52:00	1044	1015	369	-41	163.00	7.08	7.77	0	156	0
11:56:00	1044	1015	369	-41	163.00	7.08	7.77	0	166	0
12:00:00	1054	1022	374	-41	163.00	7.25	7.67	0	164	1

D110112.XLS

11/1/91 12:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
12:00:00	0.30	1.01	18.01	4.83	0.32	170.30	1808	1266	1370	1336
12:04:00	0.25	0.94	17.64	4.83	0.33	170.30	1813	1266	1370	1336
12:08:00	0.30	0.93	17.51	4.83	0.33	170.30	1817	1266	1370	1336
12:12:00	0.30	0.92	17.88	4.83	0.33	170.30	1800	1266	1370	1336
12:16:00	0.30	0.89	17.49	4.83	0.34	170.30	1784	1266	1277	1336
12:20:00	0.30	0.89	17.92	4.83	0.32	167.10	1775	1266	1340	1336
12:24:00	0.30	0.90	17.92	4.83	0.32	167.10	1772	1266	1369	1336
12:28:00	0.30	0.94	17.89	4.83	0.34	164.40	1777	1266	1366	1336
12:32:00	0.30	0.99	17.44	4.83	0.33	164.40	1772	1266	1339	1336
12:36:00	0.30	1.05	17.99	4.83	0.32	164.40	1765	1266	1366	1336
12:40:00	0.30	1.12	17.99	4.83	0.35	164.40	1761	1266	1366	1336
12:44:00	0.30	1.02	17.97	4.83	0.32	165.30	1761	1266	1364	1336
12:48:00	0.30	0.98	17.06	4.83	0.32	165.30	1761	1266	1364	1336
12:52:00	0.30	0.93	17.59	4.83	0.34	167.90	1795	1266	1364	1336
12:56:00	0.30	0.92	17.13	4.83	0.32	167.90	1674	1266	1364	1336
13:00:00	0.30	0.91	17.71	4.83	0.33	167.90	1806	1238	1364	1336
13:04:00	0.30	0.86	17.52	4.83	0.34	167.90	1759	1214	1355	1336
13:08:00	0.30	0.83	17.83	4.83	0.32	167.90	1759	1217	1355	1336
13:12:00	0.30	0.69	17.76	4.83	0.32	167.90	1759	1177	1355	1336
13:16:00	0.30	0.70	17.76	4.83	0.34	167.90	1759	1251	1355	1336
13:20:00	0.30	0.72	17.76	4.83	0.32	167.90	1759	1225	1355	1336
13:24:00	0.30	0.74	18.09	4.83	0.32	167.90	1759	1225	1355	1336
13:28:00	0.30	0.77	17.61	4.83	0.32	165.20	1759	1218	1324	1336
13:32:00	0.30	0.83	17.98	4.83	0.32	165.20	1774	1218	1324	1336
13:36:00	0.30	0.92	18.04	4.83	0.34	165.20	1742	1218	1350	1310
13:40:00	0.30	0.91	17.33	4.83	0.32	165.20	1742	1218	1319	1310
13:44:00	0.30	0.89	18.26	4.83	0.32	165.20	1742	1182	1346	1310
13:48:00	0.30	0.86	17.99	4.83	0.34	165.20	1732	1228	1346	1310
13:52:00	0.30	0.68	17.55	4.83	0.32	165.20	1736	1200	1346	1310
13:56:00	0.30	0.70	17.64	4.83	0.32	165.20	1740	1239	1346	1310
14:00:00	0.28	0.71	17.45	4.73	0.34	164.60	1753	1214	1329	1308

D110112.XLS

11/1/91 12:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
12:00:00	1054	1022	374	-41	163.00	7.25	7.67	0	164	1
12:04:00	1054	1022	374	-41	163.00	7.25	7.67	0	152	1
12:08:00	1054	1022	374	-41	163.00	7.35	7.67	0	164	1
12:12:00	1054	1022	374	-41	163.00	7.45	7.67	0	161	1
12:16:00	1054	1022	374	-41	163.00	7.55	7.57	0	166	1
12:20:00	1054	1022	374	-41	159.80	7.74	7.57	0	169	1
12:24:00	1054	1022	374	-41	159.80	7.79	7.57	0	169	1
12:28:00	1054	1022	374	-41	159.80	7.77	7.57	0	169	1
12:32:00	1054	1022	374	-41	159.80	7.64	7.57	0	171	1
12:36:00	1054	1022	374	-41	157.20	7.64	7.57	0	173	1
12:40:00	1054	1022	374	-41	157.20	7.64	7.57	0	173	1
12:44:00	1068	1035	374	-41	157.20	7.64	7.57	0	173	1
12:48:00	1068	1035	374	-41	160.10	7.35	7.57	0	173	1
12:52:00	1068	1035	374	-41	160.10	7.86	7.57	0	186	1
12:56:00	1068	1012	374	-41	160.10	7.86	7.33	0	186	1
13:00:00	1031	986	374	-41	163.20	7.86	7.33	0	186	1
13:04:00	1031	972	374	-41	160.30	8.57	6.79	0	171	1
13:08:00	1006	972	374	-41	160.30	8.69	6.79	0	171	1
13:12:00	993	972	374	-41	160.30	9.04	6.79	0	171	1
13:16:00	1006	972	374	-41	160.30	9.04	6.79	0	171	1
13:20:00	987	958	374	-41	160.30	9.04	6.79	0	171	1
13:24:00	988	958	374	-41	160.30	9.08	6.79	0	171	1
13:28:00	988	958	374	-41	160.30	9.08	6.79	0	171	1
13:32:00	988	958	374	-41	160.30	9.04	6.79	0	159	1
13:36:00	988	958	374	-41	160.30	8.74	6.79	0	159	1
13:40:00	974	958	374	-41	160.30	8.74	6.79	0	159	1
13:44:00	987	958	374	-41	160.30	8.69	6.79	0	159	1
13:48:00	970	945	374	-41	160.30	8.64	6.79	0	159	1
13:52:00	983	945	374	-41	160.30	8.74	6.79	0	159	1
13:56:00	983	945	374	-41	160.30	8.74	6.79	0	159	1
14:00:00	971	953	371	-41	158.20	8.89	6.89	0	164	0

D110114.XLS

11/1/91 14:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
14:00:00	0.28	0.71	17.45	4.73	0.34	164.60	1753	1214	1329	1308
14:04:00	0.33	0.73	18.14	4.73	0.32	164.60	1753	1211	1329	1308
14:08:00	0.27	0.75	18.11	4.73	0.32	164.60	1753	1190	1329	1308
14:12:00	0.32	0.77	17.35	4.73	0.34	164.60	1753	1163	1329	1308
14:16:00	0.27	0.83	17.70	4.73	0.32	164.60	1753	1197	1329	1308
14:20:00	0.27	0.96	17.92	4.73	0.32	164.60	1753	1197	1329	1308
14:24:00	0.27	0.92	17.92	4.73	0.34	164.60	1753	1232	1329	1308
14:28:00	0.28	0.90	17.70	4.73	0.34	164.60	1753	1170	1329	1308
14:32:00	0.28	0.88	17.98	4.73	0.33	164.60	1753	1213	1329	1308
14:36:00	0.32	0.82	17.50	4.73	0.33	164.60	1753	1218	1329	1308
14:40:00	0.27	0.69	17.25	4.73	0.33	164.60	1753	1185	1302	1308
14:44:00	0.32	0.72	17.96	4.73	0.33	164.60	1753	1216	1344	1308
14:48:00	0.32	0.74	17.73	4.73	0.33	164.60	1753	1165	1344	1308
14:52:00	0.32	0.78	18.10	4.73	0.32	164.60	1753	1195	1344	1308
14:56:00	0.27	0.93	17.93	4.73	0.32	164.60	1753	1169	1344	1308
15:00:00	0.31	0.93	17.25	4.73	0.34	164.60	1753	1182	1344	1308
15:04:00	0.31	0.89	17.89	4.88	0.32	164.60	1753	1220	1344	1308
15:08:00	0.31	0.82	17.87	4.88	0.32	164.60	1753	1224	1344	1308
15:12:00	0.31	0.69	18.12	4.88	0.34	164.60	1753	1173	1344	1308
15:16:00	0.31	0.73	17.76	4.88	0.32	164.60	1753	1210	1344	1308
15:20:00	0.31	0.77	17.76	4.88	0.32	164.60	1753	1178	1344	1308
15:24:00	0.31	0.86	17.76	4.88	0.33	164.60	1753	1178	1344	1308
15:28:00	0.31	0.95	17.65	4.88	0.32	164.60	1753	1182	1344	1308
15:32:00	0.31	0.92	17.63	4.88	0.32	164.60	1753	1152	1344	1308
15:36:00	0.31	0.69	17.94	4.88	0.32	164.60	1742	1163	1344	1308
15:40:00	0.31	0.72	17.66	4.88	0.32	164.60	1772	1192	1344	1308
15:44:00	0.31	0.75	17.66	4.88	0.35	164.60	1745	1192	1344	1308
15:48:00	0.31	0.84	18.00	4.88	0.32	164.60	1778	1199	1344	1308
15:52:00	0.31	0.93	18.00	4.88	0.32	164.60	1771	1169	1344	1308
15:56:00	0.31	0.96	17.58	4.88	0.34	164.60	1684	1195	1344	1308
16:00:00	0.33	0.77	17.54	4.78	0.32	169.60	1707	1207	1350	1314

D110114.XLS

11/1/91 14:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
14:00:00	971	953	371	-41	158.20	8.89	6.89	0	164	0
14:04:00	971	953	371	-41	158.20	8.89	6.89	0	164	0
14:08:00	985	953	371	-41	158.20	8.89	6.89	0	164	0
14:12:00	985	953	371	-41	158.20	8.89	6.64	0	164	0
14:16:00	966	953	371	-41	158.20	8.89	6.64	0	164	0
14:20:00	966	953	371	-41	158.20	8.89	6.64	0	164	0
14:24:00	981	953	371	-41	158.20	8.89	6.89	0	164	0
14:28:00	996	953	371	-41	158.20	8.89	6.89	0	164	0
14:32:00	981	953	371	-41	158.20	8.89	6.89	0	164	0
14:36:00	984	953	371	-41	158.20	8.89	6.89	0	164	0
14:40:00	984	953	371	-41	158.20	8.89	6.84	0	164	0
14:44:00	979	953	371	-41	158.20	8.89	6.84	0	164	0
14:48:00	979	953	371	-41	158.20	8.89	6.84	0	164	0
14:52:00	979	953	371	-41	158.20	8.89	6.60	0	164	0
14:56:00	993	953	371	-41	158.20	8.89	6.60	0	164	0
15:00:00	972	953	371	-41	158.20	8.89	6.84	0	164	0
15:04:00	987	953	371	-41	158.20	8.89	6.84	0	164	0
15:08:00	987	953	371	-41	158.20	8.60	6.84	0	164	0
15:12:00	987	953	371	-41	158.20	8.89	6.94	0	164	0
15:16:00	987	953	371	-41	158.20	8.89	6.64	0	164	0
15:20:00	969	953	371	-41	158.20	9.04	6.64	0	164	0
15:24:00	983	953	371	-41	158.20	8.96	6.60	0	164	0
15:28:00	996	953	371	-41	158.20	8.69	6.89	0	164	0
15:32:00	970	953	371	-41	158.20	8.57	6.89	0	164	0
15:36:00	970	953	371	-41	158.20	8.60	6.99	0	164	0
15:40:00	990	953	371	-41	158.20	8.86	6.69	0	164	0
15:44:00	973	953	371	-41	158.20	8.99	6.69	0	164	0
15:48:00	988	953	371	-41	158.20	8.67	6.64	0	154	0
15:52:00	973	953	371	-41	158.20	8.67	6.89	0	154	0
15:56:00	988	953	371	-41	158.20	8.55	6.89	0	154	0
16:00:00	1004	951	367	-41	163.00	6.91	7.96	0	132	1

D110116.XLS

11/1/91 16:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
16:00:00	0.33	0.77	17.54	4.78	0.32	169.60	1707	1207	1350	1314
16:04:00	0.33	0.81	17.27	4.78	0.33	169.60	1745	1170	1350	1314
16:08:00	0.33	0.86	17.33	4.78	0.32	172.50	1745	1183	1350	1314
16:12:00	0.33	0.91	17.49	4.78	0.32	172.50	1751	1196	1350	1314
16:16:00	0.33	0.96	16.92	4.78	0.34	172.50	1776	1165	1350	1314
16:20:00	0.28	1.03	17.18	4.78	0.33	172.50	1773	1204	1350	1314
16:24:00	0.33	0.99	17.18	4.78	0.35	172.50	1742	1243	1350	1314
16:28:00	0.33	0.96	17.20	4.78	0.32	172.50	1749	1189	1350	1314
16:32:00	0.33	0.92	17.46	4.78	0.34	172.50	1739	1189	1350	1314
16:36:00	0.33	0.78	17.28	4.78	0.32	172.50	1743	1196	1350	1314
16:40:00	0.33	0.80	17.24	4.78	0.33	172.50	1761	1196	1350	1314
16:44:00	0.33	0.84	17.24	4.78	0.34	172.50	1761	1218	1350	1314
16:48:00	0.33	0.87	16.97	4.78	0.32	172.50	1787	1189	1350	1314
16:52:00	0.33	0.92	17.62	4.78	0.33	172.50	1807	1202	1351	1314
16:56:00	0.33	0.97	17.26	4.78	0.33	172.50	1811	1202	1355	1314
17:00:00	0.33	1.02	17.54	4.78	0.32	172.50	1799	1202	1352	1314
17:04:00	0.33	0.97	17.85	4.78	0.34	169.80	1768	1202	1352	1314
17:08:00	0.33	0.94	17.34	4.78	0.32	169.80	1768	1233	1352	1314
17:12:00	0.34	0.91	17.34	4.78	0.33	169.80	1764	1233	1327	1314
17:16:00	0.29	0.88	17.34	4.78	0.32	169.80	1757	1197	1327	1314
17:20:00	0.34	0.73	17.57	4.78	0.32	169.80	1727	1163	1361	1314
17:24:00	0.29	0.77	17.66	4.78	0.34	169.80	1732	1200	1361	1314
17:28:00	0.29	0.83	17.66	4.78	0.32	172.60	1732	1200	1361	1314
17:32:00	0.29	0.90	17.40	4.78	0.33	172.60	1760	1168	1361	1314
17:36:00	0.33	0.95	16.96	4.78	0.32	172.60	1742	1208	1328	1314
17:40:00	0.35	0.89	17.42	4.78	0.32	172.60	1713	1156	1328	1314
17:44:00	0.35	0.80	17.42	4.78	0.34	172.60	1693	1241	1328	1314
17:48:00	0.29	0.73	17.11	4.78	0.33	172.60	1710	1149	1328	1314
17:52:00	0.35	0.79	17.68	4.78	0.34	172.60	1737	1204	1328	1314
17:56:00	0.30	0.86	17.68	4.78	0.32	172.60	1750	1215	1330	1314
18:00:00	0.29	0.95	17.07	4.77	0.33	173.10	1742	1198	1329	1302

D110116.XLS

11/1/91 16:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
16:00:00	1004	951	367	-41	163.00	6.91	7.96	0	132	1
16:04:00	1004	951	367	-41	163.00	6.91	7.96	0	132	1
16:08:00	1004	951	367	-41	165.80	7.20	7.96	0	147	1
16:12:00	1004	951	367	-41	165.80	7.25	7.72	0	147	1
16:16:00	1004	951	367	-41	165.80	7.18	7.67	0	147	1
16:20:00	1004	951	367	-41	165.80	6.91	7.72	0	147	1
16:24:00	1004	951	367	-41	165.80	6.91	7.72	0	147	1
16:28:00	1019	951	367	-41	165.80	6.76	7.96	0	147	1
16:32:00	1019	951	367	-41	165.80	6.74	8.01	0	147	1
16:36:00	1019	951	367	-41	165.80	6.81	8.01	0	147	1
16:40:00	1019	951	367	-41	165.80	6.81	7.77	0	134	1
16:44:00	1019	951	367	-41	165.80	7.08	7.77	0	164	1
16:48:00	1019	951	367	-41	165.80	7.20	7.77	0	173	1
16:52:00	1019	964	367	-41	165.80	7.20	7.77	0	183	1
16:56:00	1019	964	367	-41	165.80	7.13	7.72	0	142	1
17:00:00	1019	964	367	-41	165.80	6.86	7.72	0	271	1
17:04:00	1019	964	367	-41	163.20	7.13	7.72	0	237	1
17:08:00	1016	964	367	-41	163.20	6.86	7.72	0	484	1
17:12:00	1031	964	367	-41	163.20	6.81	7.72	0	247	1
17:16:00	1031	964	367	-41	163.20	6.84	7.96	0	252	1
17:20:00	1031	964	367	-41	163.20	7.40	7.47	0	259	1
17:24:00	1031	964	367	-41	165.80	7.69	7.47	0	191	1
17:28:00	1031	964	367	-41	165.80	7.99	7.47	0	210	1
17:32:00	1031	964	367	-41	165.80	7.91	7.47	0	208	1
17:36:00	1017	964	367	-41	165.80	7.62	7.47	0	200	1
17:40:00	1031	964	367	-41	165.80	7.57	7.47	0	198	1
17:44:00	1031	964	367	-41	165.80	7.57	7.47	0	198	1
17:48:00	1031	964	367	-41	165.80	7.64	7.47	0	198	1
17:52:00	1031	964	367	-41	165.80	7.96	7.47	0	188	1
17:56:00	1031	964	367	-41	165.80	8.03	7.23	0	217	1
18:00:00	1014	965	374	-41	166.70	7.84	7.28	0	166	1

D110118.XLS

11/1/91 18:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
18:00:00	0.29	0.95	17.07	4.77	0.33	173.10	1742	1198	1329	1302
18:04:00	0.34	0.88	17.69	4.77	0.33	173.10	1717	1198	1329	1302
18:08:00	0.34	0.77	17.40	4.77	0.33	173.10	1693	1198	1329	1302
18:12:00	0.29	0.76	17.44	4.77	0.35	173.10	1740	1215	1329	1302
18:16:00	0.29	0.84	17.44	4.77	0.32	173.10	1754	1214	1329	1302
18:20:00	0.29	0.95	17.74	4.77	0.33	173.10	1748	1214	1329	1302
18:24:00	0.34	0.89	17.96	4.77	0.33	170.00	1722	1214	1301	1302
18:28:00	0.34	0.80	17.96	4.77	0.32	170.00	1697	1214	1301	1302
18:32:00	0.29	0.75	17.90	4.77	0.34	166.90	1723	1243	1301	1302
18:36:00	0.34	0.81	17.90	4.77	0.32	166.90	1749	1243	1301	1302
18:40:00	0.34	0.89	17.53	4.77	0.34	166.90	1767	1243	1301	1302
18:44:00	0.34	0.92	17.59	4.77	0.32	169.70	1757	1243	1301	1302
18:48:00	0.29	0.85	17.59	4.77	0.32	169.70	1741	1243	1301	1302
18:52:00	0.35	0.72	17.31	4.77	0.34	172.60	1743	1243	1301	1302
18:56:00	0.31	0.76	17.36	4.77	0.32	172.60	1754	1243	1301	1302
19:00:00	0.31	0.82	17.36	4.77	0.36	172.60	1790	1243	1301	1302
19:04:00	0.31	0.91	17.96	4.77	0.32	172.60	1802	1243	1301	1302
19:08:00	0.31	0.94	17.66	4.77	0.33	172.60	1760	1243	1301	1302
19:12:00	0.31	0.87	17.29	4.77	0.32	172.60	1766	1259	1301	1302
19:16:00	0.31	0.75	17.93	4.77	0.32	172.60	1753	1195	1301	1302
19:20:00	0.31	0.75	17.38	4.77	0.33	172.60	1799	1231	1301	1302
19:24:00	0.35	0.81	17.38	4.77	0.32	172.60	1799	1261	1301	1302
19:28:00	0.35	0.89	17.14	4.77	0.35	172.60	1827	1261	1301	1302
19:32:00	0.30	0.94	17.30	4.77	0.32	172.60	1833	1261	1301	1302
19:36:00	0.30	0.88	18.06	4.77	0.34	169.30	1800	1261	1301	1302
19:40:00	0.30	0.80	17.61	4.77	0.32	169.30	1792	1261	1333	1302
19:44:00	0.35	0.74	17.50	4.77	0.32	172.20	1815	1261	1333	1302
19:48:00	0.35	0.79	17.50	4.77	0.33	172.20	1841	1261	1333	1302
19:52:00	0.35	0.87	17.57	4.77	0.33	172.20	1860	1261	1333	1302
19:56:00	0.35	0.95	17.56	4.77	0.35	172.20	1842	1261	1333	1302
20:00:00	0.32	0.89	17.48	4.80	0.32	172.50	1817	1273	1336	1309

D110118.XLS

11/1/91 18:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
18:00:00	1014	965	374	-41	166.70	7.84	7.28	0	166	1
18:04:00	1001	965	374	-41	166.70	7.57	7.52	0	166	1
18:08:00	1018	965	374	-41	166.70	7.62	7.57	0	152	1
18:12:00	1002	965	374	-41	166.70	7.69	7.33	0	164	1
18:16:00	1002	965	374	-41	166.70	8.06	7.33	0	164	1
18:20:00	1002	965	374	-41	166.70	7.64	7.28	0	164	1
18:24:00	1002	965	374	-41	163.50	7.57	7.52	0	164	1
18:28:00	1002	965	374	-41	163.50	7.59	7.57	0	164	1
18:32:00	986	965	374	-41	160.70	7.67	7.52	0	164	1
18:36:00	986	965	374	-41	160.70	8.01	7.52	0	164	1
18:40:00	972	965	374	-41	160.70	7.99	7.28	0	164	1
18:44:00	972	965	374	-41	163.80	7.64	7.57	0	164	1
18:48:00	972	965	374	-41	163.80	7.47	7.57	0	152	1
18:52:00	972	965	374	-41	166.60	7.89	7.62	0	152	1
18:56:00	972	965	374	-41	166.60	7.89	7.57	0	164	1
19:00:00	972	965	374	-41	166.60	7.99	7.33	0	164	1
19:04:00	972	965	374	-41	166.60	7.86	7.33	0	166	1
19:08:00	972	965	374	-41	166.60	7.86	7.57	0	164	1
19:12:00	972	965	374	-41	166.60	7.47	7.57	0	164	1
19:16:00	972	965	374	-41	166.60	7.55	7.62	0	200	1
19:20:00	972	965	374	-41	166.60	7.86	7.33	0	186	1
19:24:00	972	965	374	-41	166.60	8.03	7.33	0	161	1
19:28:00	972	965	374	-41	166.60	7.96	7.23	0	161	1
19:32:00	972	965	374	-41	166.60	7.67	7.28	0	169	1
19:36:00	972	965	374	-41	163.00	7.62	7.28	0	169	1
19:40:00	972	965	374	-41	163.00	7.59	7.57	0	159	1
19:44:00	972	965	374	-41	166.10	7.64	7.52	0	166	1
19:48:00	972	980	374	-41	166.10	7.99	7.52	0	159	1
19:52:00	972	980	374	-41	166.10	8.01	7.23	0	205	1
19:56:00	972	980	374	-41	166.10	7.89	7.28	0	154	1
20:00:00	979	977	368	-41	166.40	7.57	7.52	0	154	0

D110120.XLS

11/1/91 20:00		NAT	MAIN	STG	ATOM	COMB	ESP	ESP	ESP	ESP
TIME	CWS	GAS	AIR	AIR	AIR	PRESS	INLET	TOP	OUT	EXIT FG
HH:MM:SS	lb/min	lb/min	lb/min	lb/min	lb/min	psia	deg F	deg F	deg F	deg F
20:00:00	0.32	0.89	17.48	4.80	0.32	172.50	1817	1273	1336	1309
20:04:00	0.36	0.78	16.94	4.80	0.34	172.50	1799	1247	1336	1309
20:08:00	0.35	0.76	17.43	4.80	0.32	172.50	1850	1272	1336	1309
20:12:00	0.31	0.82	17.38	4.80	0.32	172.50	1856	1272	1336	1309
20:16:00	0.31	0.97	17.38	4.80	0.32	172.50	1844	1272	1336	1309
20:20:00	0.31	0.90	17.27	4.80	0.32	172.50	1813	1272	1336	1309
20:24:00	0.35	0.77	17.82	4.80	0.33	172.50	1810	1272	1336	1309
20:28:00	0.35	0.75	17.53	4.80	0.32	172.50	1846	1272	1336	1309
20:32:00	0.35	0.83	17.47	4.80	0.34	172.50	1792	1272	1336	1309
20:36:00	0.31	0.97	17.44	4.80	0.32	172.50	1754	1272	1336	1309
20:40:00	0.35	0.89	17.19	4.80	0.33	172.50	1754	1272	1336	1309
20:44:00	0.30	0.76	17.21	4.80	0.32	172.50	1736	1272	1336	1309
20:48:00	0.30	0.76	17.52	4.80	0.32	172.50	1736	1272	1316	1309
20:52:00	0.31	0.00	18.21	4.80	0.34	167.80	1575	1186	1127	1309
20:56:00	0.36	0.00	5.42	4.06	0.34	123.00	1193	928	910	1220
21:00:00	0.36	0.00	2.96	0.00	0.35	54.80	1149	832	910	1192
21:04:00	0.31	0.00	0.02	0.00	0.32	18.20	1118	869	1034	1192
21:08:00	0.35	0.00	0.02	0.00	0.34	18.20	1273	933	1139	1163
21:12:00	0.31	0.00	0.02	0.00	0.32	18.20	1306	979	1164	1138
21:16:00	0.32	0.00	0.02	0.00	0.32	18.20	1331	979	1164	1138
21:20:00	0.31	0.00	0.02	0.00	0.32	18.20	1331	979	1191	1111
21:24:00	0.36	0.00	0.02	0.00	0.32	18.20	1331	1004	1191	1111
21:28:00	0.37	0.00	0.02	0.00	0.32	18.20	1331	1004	1191	1111
21:32:00	0.35	0.00	0.02	0.00	0.00	18.20	1331	1004	1191	1043
21:36:00	0.36	0.00	0.02	0.00	0.00	18.20	1331	1004	1191	1012
21:40:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
21:44:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
21:48:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
21:52:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
21:56:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148
22:00:00	0.00	0.00	0.00	0.00	0.00	0.00	-148	-148	-148	-148

D110120.XLS

11/1/91 20:00										
TIME	COIL 1	COIL 2	BUSH 1	BUSH 2	PCV	O2	CO2	CO	NO	SO2
HH:MM:SS	deg F	deg F	deg F	deg F	psia	%	%	ppm	ppm	ppm
20:00:00	979	977	368	-41	166.40	7.57	7.52	0	154	0
20:04:00	979	977	368	-41	166.40	7.57	7.57	0	154	0
20:08:00	979	977	368	-41	166.40	7.64	7.28	0	154	0
20:12:00	979	977	368	-41	166.40	8.03	7.52	0	154	0
20:16:00	979	977	368	-41	166.40	7.86	7.28	0	154	0
20:20:00	979	977	368	-41	166.40	7.55	7.57	0	154	0
20:24:00	979	977	368	-41	166.40	7.50	7.62	0	142	0
20:28:00	979	977	368	-41	166.40	7.62	7.33	0	156	0
20:32:00	979	977	368	-41	166.40	8.03	7.28	0	156	0
20:36:00	979	977	368	-41	166.40	7.84	7.28	0	144	0
20:40:00	979	977	368	-41	166.40	7.52	7.57	0	144	0
20:44:00	979	977	368	-41	166.40	7.52	7.62	0	142	0
20:48:00	979	977	368	-41	166.40	7.64	7.33	0	144	0
20:52:00	979	977	368	-41	162.20	8.11	7.33	0	156	0
20:56:00	888	895	368	-41	117.20	16.34	2.10	0	12	0
21:00:00	823	832	368	-41	50.00	14.38	3.08	0	12	0
21:04:00	746	749	368	-41	14.70	12.04	9.09	25	195	0
21:08:00	746	734	368	-41	14.70	16.29	6.55	10	266	0
21:12:00	730	719	368	-41	14.70	6.89	5.86	10	420	0
21:16:00	716	705	334	-41	14.70	6.89	5.86	10	81	0
21:20:00	716	705	308	-41	14.70	6.62	5.86	10	61	0
21:24:00	703	692	308	-41	14.70	6.62	5.86	10	73	0
21:28:00	703	692	274	-41	14.70	6.62	5.86	10	73	0
21:32:00	689	678	274	-41	14.70	6.62	5.86	10	56	0
21:36:00	689	678	274	-41	14.70	6.62	5.86	10	20	0
21:40:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
21:44:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
21:48:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
21:52:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
21:56:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0
22:00:00	-4	-4	-148	-148	0.00	0.00	0.00	0	0	0

END

DATE
FILMED
5/04/93